Legionella Kits

- **Speed**
  - Time to result less than 2 hours

- **Specificity**
  - High specificity and sensitivity
  - Detection of viable but non-culturable cells
  - Discrimination of dead cells

- **Application**
  - Aqueous samples
  - Compatible with flow cytometry, cultivation, PCR, microscopy, etc.
Legionella Facts

<table>
<thead>
<tr>
<th>Class</th>
<th>Gammaproteobacteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genus</td>
<td>Legionella – with about 70 species</td>
</tr>
<tr>
<td>About L.p. SG1</td>
<td>15 substrains</td>
</tr>
<tr>
<td>Morphology</td>
<td>Rod-shaped, 0.3-0.9 µm wide and approx. 2 µm long, gram-negative, non-spore-forming</td>
</tr>
<tr>
<td>Natural habitats</td>
<td>Freshwater environments and soil, facultative intracellular parasite, invades and replicates inside amoeba</td>
</tr>
<tr>
<td>Artificial habitats</td>
<td>Grows and spreads in human-made water systems, forms biofilm in pipes and containers</td>
</tr>
<tr>
<td>Infectious agent of</td>
<td>Pontiac fever and Legionnaire’s disease, the latter with a mortality rate of ≈ 10%</td>
</tr>
<tr>
<td>Transmission</td>
<td>Inhalation of aerosol containing bacteria; Legionella can spread at least 6 km by air from the source</td>
</tr>
<tr>
<td>Defense mechanism</td>
<td>Endures harsh conditions in a viable but non-culturable state (VBNIC)</td>
</tr>
<tr>
<td>Growth conditions</td>
<td>Multiplies between 25°C and 42°C under aerobic conditions</td>
</tr>
</tbody>
</table>

In 96.3% of Legionnaire’s disease cases, *Legionella pneumophila* was identified as infectious agent.

In 83% of these cases the infection was associated with *Legionella pneumophila* serogroup 1.*

*Source: Legionnaires’ Disease in Europe, 2011 To 2015, Julien Beauté- on behalf of the European Legionnaires’ Disease Surveillance Network, http://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2017.22.27.30566

rqmicro Method

Concentration
- Filtration of sample and resuspension in a small volume of buffer.

Reaction
- Incubation with reagents.

Purification
- Immunomagnetic separation (IMS) of target cells and elimination of > 95% of the competing flora.

Quantification
- Quantification by flow cytometry, cultivation, fluorescence microscopy, PCR, etc.
rqmicro Method & Flow Cytometry
Time to Result less than 2 Hours

Single cell analysis by flow cytometry allows for fast quantification of target cells. By adding viability dye, a distinct population of dead cells moves out of the target gate, which allows quantifying the viable cell population. In contrast to the cultivation method also viable but non-culturable cells are detected, which minimizes the risk of false-negative results.

rqmicro Method & Cultivation on Agar Plates
Elimination of Competing Flora

Without IMS: overgrown plate
- Not evaluable

With IMS: single L.p. SG1 colonies
- Clear results
Kits

<table>
<thead>
<tr>
<th>Organism</th>
<th>Quantification Step</th>
<th>Purification Step*</th>
<th>Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>L. pneumophila SG1</td>
<td>Flow Cytometry</td>
<td>CellStream</td>
<td>L.p. SG1 DETECT CellStream</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MIMS</td>
<td>L.p. SG1 DETECT MIMS</td>
</tr>
<tr>
<td></td>
<td>Cultivation</td>
<td>CellStream</td>
<td>L.p. SG1 SEP CellStream</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MIMS</td>
<td>L.p. SG1 SEP MIMS</td>
</tr>
<tr>
<td>L. pneumophila</td>
<td>Flow Cytometry</td>
<td>CellStream</td>
<td>L.p. SG1-14 DETECT CellStream</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MIMS</td>
<td>L.p. SG1-14 DETECT MIMS</td>
</tr>
<tr>
<td></td>
<td>Cultivation</td>
<td>CellStream</td>
<td>L.p. SG1-15 SEP CellStream</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MIMS</td>
<td>L.p. SG1-15 SEP MIMS</td>
</tr>
</tbody>
</table>

*CellStream: automated IMS; MIMS: manual IMS

Kits are available as **PLUS option** to meet the increased requirements for the precise and reliable analysis of complex aqueous matrices, e.g. industrial water or cooling tower water.

Our R&D team is constantly working on expanding our offer. To find out more about kits under development please check out our website: [www.rqmicro.com](http://www.rqmicro.com)

**rqmicro products are successfully applied in the following areas:**

- Service laboratories
- Healthcare
- Public facilities
- Water supply
- Industry and cooling towers

**Contact us:**

rqmicro AG  
Brandstrasse 24  
8952 Schlieren  
Switzerland

+41 44 512 51 51

Sales support: sales@rqmicro.com  
General information: info@rqmicro.com  
[www.rqmicro.com](http://www.rqmicro.com), Copyright © rqmicro AG 2018