


# STANTON TERRITORIAL HEALTH AUTHORITY

## Yellowknife, Northwest Territories

<b>TITLE: Motility</b>	<b>Revision Date:</b> 20-April-2018	<b>Issue Date:</b> 20-April-2016
<b>Document Number: MIC51300</b>	<b>Status: <span style="color: red;">Approved</span></b>	
<b>Distribution: Microbiology Test Manual</b>	<b>Page: 1 of 4</b>	
<b>Approved by:</b> S. Asmussen, Manager of Diagnostic Services	<b>Signed by:</b> 	

### PURPOSE:

The Motility Test is used to detect the presence of flagella by bacteria, allowing them to travel in the microscopic field. Movement is observed microscopically.

### SAMPLE INFORMATION:

<b>Type</b>	Well isolated colonies
<b>Source</b>	18-24 hour culture

### REAGENTS and/or MEDIA:

<b>Type</b>	TSB broth
<b>Source</b>	Oxoid
<b>Stability</b>	Stable until expiration date indicated
<b>Storage Requirements</b>	Store at 2-8°C away from direct light
<b>Criteria for rejection and follow up action</b>	Do not use if there are signs of contamination or deterioration (shrinking/discoloration).
<b>For wet prep</b>	Sterile saline or any broth which does not contain carbohydrate and will support the growth of organisms (BHI, TSB)

### SUPPLIES:

- Inoculating wire
- Motility test tube
- Glass slides and cover slips

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<b>4</b>	<p>Incubate as follows:</p> <ul style="list-style-type: none"> <li>• <i>Enterobacteriaceae</i>: 35°C for 24h</li> <li>• <i>Listeria sp</i> and <i>Yersinia sp</i>: incubate 2 tubes: <ul style="list-style-type: none"> <li>➤ One at 35°C</li> <li>➤ One at 25°C</li> </ul> </li> <li>• If there is a question regarding a negative result, incubate at 25°C</li> </ul>
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### **INTERPRETATION OF RESULTS:**

Result	Interpretation
Directional purposeful motility	<p><b>POSITIVE; motile</b></p> <ul style="list-style-type: none"> <li>• <i>Listeria sp</i> will exhibit tumbling motility at 25°C</li> <li>• <i>Campylobacter sp</i> will exhibit darting motility</li> <li>• <i>Enterobacteriaceae .casseliflavus</i> and <i>E.gallinarum</i> are motile</li> <li>• <i>B.anthraxis</i> is motile</li> </ul>
Vibrational or jiggling/shaking movement	<p><b>NEGATIVE; non-motile</b></p> <ul style="list-style-type: none"> <li>• Brownian movement</li> </ul>

### **NOTES AND PRECAUTIONS:**

1. Motility tests may show a false-negative reaction. The organism may be weakly motile, or the flagella may be damaged due to heating, shaking, or other trauma.
2. *Bacillus spp.* should be motile. Lack of motility could indicate *B. anthracis*.
3. A large number of *E. casseliflavus* and *E. gallinarum* organisms have been reported as non-motile using some tube motility agar. If a vancomycin MIC is between 4 and 16 µg/mL and the isolate is ampicillin susceptible, but the enterococcus is non-motile, confirm results with the 2h broth method (incubate the suspension for two hours in broth before examining).

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4. Listeria organisms are motile at 25°C but not at 35°C. On wet mount they exhibit tumbling motility.
5. Yersinia enterocolitica is motile at 25°C but not at 35°C.

**REFERENCES:**

- Garcia, L. S. (2010). Motility Tests. *Clinical Microbiology Procedures Handbook vol.1* , pp. 3.17.31.1-3.17.31.3.

**REVISION HISTORY:**

REVISION	DATE	Description of Change	REQUESTED BY
1.0	31Dec2013	Initial Release	A.Darrach
2.0	31March16	Update of "Special Safety Precautions" to reflect risk assessment recommendations.	C. Russell

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