Ten test cards are provided. Each card has 6 test circles. If only two test circles are to be used, then the card may be cut and the unused portion saved for later use.

Instructions for use

4. MATERIAL REQUIRED BUT NOT SUPPLIED

Timer

Microbiological Loop

Disinfectant – sodium hypochlorite solution (>1.3% w/w) or a suitable proprietary disinfectant used at the manufacturer’s recommended concentration.

5. SAMPLE COLLECTION AND PREPARATION

The Oxoid Salmonella Latex Test Kit can be used in conjunction with the Oxoid Salmonella Rapid Test (FT0201A). However, additional investigations have shown that it can also be used as a rapid screen for presumptive positive colonies from agar plates.

When using the Oxoid Salmonella Rapid Test (FT0201A) take a sample of material from the upper indicator media in the tubes of a presumptive positive result, using a microbiological loop. If one tube is indicator positive, perform the latex test on that one. However, if both tubes give a positive indicator reaction, then test tube A only. First only use tube B for testing if tube A is latex negative.

When using the latex test with suspect colonies grown on selective culture media, it is recommended that any suspect colonies are first streaked onto a fresh non-selective plate in order to obtain a pure culture. Sufficient material can then be taken to perform the test (ie a single isolated colony for both the test latex and control latex).

6. PROCEDURE

6.1 Bring the latex reagents to room temperature. Mix the latex suspensions by vigorous shaking. Expen any excess latex from the dropper pipettes to ensure complete mixing.

6.2 Dispense one free-falling drop of the test latex onto one of the test circles on the reaction card.

6.3 Dispense one free-falling drop of the control latex onto an adjacent test circle on the test card.

6.4 (a) From Oxoid Salomonella Rapid Test

Take a loopful of material from the upper indicator media of the presumptive positive Salomonella Rapid Test tube, and mix with the test latex drop. Continue mixing with the loop for 10–15 seconds, while spreading the loop to cover most of the reaction area. Flame and cool the loop (or use a sterile stainless loop) and mix a second loopful of material from the same tube with the control latex drop. Continue mixing with the loop for 10–15 seconds, while spreading the loop to cover most of the reaction area.

(b) Colonies Taken from a Selective Agar Plate

Take a suspect colony from the selective agar plate and streak onto a fresh non-selective plate (eg blood agar) and incubate to obtain a pure culture. Mix one colony in a test circle with a drop of the test latex. Using a fresh loop, mix a second colony in a second test circle with a drop of the control latex. Continue mixing for 10–15 seconds.

6.5 Gently rock the card in a circular motion for up to 2 minutes and observe for agglutination. (DO NOT ROCK THE CARD FOR LONGER THAN 2 MINUTES AND DO NOT USE A MAGNIFYING GLASS TO AID READING.)

6.6 Return the latex kit to the refrigerator after use.

7. READING AND INTERPRETATION

Positive

A result is positive if agglutination of the test latex occurs within 2 minutes, and no agglutination of the control latex occurs within 2 minutes.

Negative

A result is negative if no agglutination of either the test latex or the control latex occurs within 2 minutes. Reactions occurring after 2 minutes should be ignored.

NB: In some cases, agglutination of both the test latex and control latex may be observed. Such results should be regarded as un-interpretable, and in these cases the culture should be re-streaked and checked using biochemical and serological procedures.

8. FURTHER IDENTIFICATION

A positive agglutination reaction should be regarded as presumptively positive for Salmonella spp. Identification should be confirmed using further standard cultural, biochemical and serological techniques.

9. POSITIVE CONTROL SUSPENSION

The positive control suspension should be used periodically to check the correct working of the latex reagents. Use a loopful of the non-viable positive control suspension as the test sample. The test latex must give a positive reaction within 30 seconds. The control latex must not show any signs of agglutination during the 2 minutes of rocking.

10. LIMITATIONS

10.1. The Oxoid Salomonella Latex Test can be used as an effective screen for distinguishing between Salmonella spp. and other organisms. However, it should be noted that when it is used in conjunction with the Oxoid Salmonella Rapid Test (FT0201A), the method is not appropriate for the detection of non-motile strains of Salmonella spp. (incidence <0.1%)².

10.2. The Oxoid Salomonella Latex Test can be used as a rapid confirmation screen for presumptive Salmonella spp. from selective agar plates, provided further confirmation and identification work is carried out on those organisms giving a positive latex reaction. Testing can be done directly from the selective plate but a negative result should also be confirmed, following streaking onto a non-selective plate (eg blood agar) and confirmed again using the latex as directed.

10.3. Certain serotypes may only give a weak reaction. In this case, a sweep of colonies from a pure culture should be tested with the latex.

10.4. Granular or Stringy Reactions Occasionally, granular or stringy reactions may be seen due to the particulate nature of the test material. When such reactions occur, the test should be interpreted using the following criteria:

10.5. The result is considered POSITIVE, when a greater clearing of the blue background occurs with the test reagent when compared to the reaction of the control reagent.

10.6. The result is considered NEGATIVE, when there are no significant changes in the clearing of the blue background when using both the test and control reagents.

11. PRECAUTIONS

IVD

This product is for in vitro diagnostic use only. Do not freeze. Always use reagents with the same lot number. Reagents contain 0.1% sodium azide as preservative. Sodium azide may react with lead or copper plumbing to produce metallic azides which are explosive by contact detonation. To prevent accumulation of azides in plumbing, flush any waste disposal with copious amounts of water immediately. Dispose of all contaminated materials (test cards, plastic loops etc.), by immersing in disinfectant. All samples contain potentially hazardous organisms and must be handled using appropriate safety procedures.

12. STORAGE CONDITIONS

Store all reagents at 2°C to 8°C.

13. STABILITY

All reagents will remain stable until the expiry date shown on the bottle labels. Do not use beyond the expiry date.

14. PERFORMANCE CHARACTERISTICS

(a) Oxoid Rapid Salmonella Test

Laboratory tests have demonstrated Salmonella with the following antigenic determinants can be recovered from the Oxoid Salmonella Rapid Test and detected by the Oxoid Salmonella Latex Test.

Flagella Antigens

Phase 1: a, b, c, d, e, f, g, p, q, r, s, t, z, z

Flagella Antigens

Phase 2: j, k, l, n, o, p, q, r, s, t, z, z

Flagella Antigens

Phase 3: s, t, z, z

Flagella Antigens

Phase 4: h, en, enz,

(c) Colonies from Selective Agar Plates

Additional investigations have shown the Oxoid Salmonella Latex Test can be used as a rapid screen for isolates from certain selective media. (It is recommended that laboratories validate this method with their own in-house strains.)

The following ten Salmonella serotypes all gave positive agglutination reactions with the Oxoid Salmonella Latex Test, when tested with both the test and control latex from:

XLD (Xylose Lysine Desoxycholate) Agar (CM0469), MLCB (Mannitol Lysine Crystal Violet Brilliant Green) Agar (CM0783), SS (Salmonella-Shigella) Agar (CM0099), MSS (modified Salmonella- Shigella) Agar (CM0433), BGA (Brilliant Green Agar) (CM0263), Oxoid Salmonella Chromogenic Medium (CM1007), S. enteritidis, S. poona, S. hadar, S. heidelberg, S. infantis, S. agona, S. typhimurium, S. Newport, S. java and S. virchow.

Strains of C. freundii, Shigella spp., H. alvei, M. morganii, P. vulgaris, P. mirabilis, E. coli, K. pneumoniae, E. amycolagenus 2 and
Enterobacter spp. all gave negative reactions with the latex. Some strains of H. alvei may give stringy reactions, but this is usually also apparent with the control latex and therefore should not be confused with a true agglutination reaction.

In further evaluations using the Oxoid Salmonella Latex Test as a screening test for Salmonella, 562 strains with a typical Salmonella morphology on DCLS (Desoxycholate Lactose Sucrose) Agar (CM0393), Hektoen Enteric Agar (CM0419) and Bismuth Sulphite Agar (CM0201), and 85 known Salmonella serotypes were all sub-cultured onto TSI Agar slants and then tested with the latex, as per the pack insert.

The results are as follows:

**TABLE 1**

<table>
<thead>
<tr>
<th>Organisms Identified</th>
<th>Negative Reactions # (%)</th>
<th>Positive Reactions # (%)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klebsiella spp.</td>
<td>1 (0.2)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Edwardsiella spp.</td>
<td>3 (0.5)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Serratia spp.</td>
<td>46 (7.1)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Enterobacter spp.</td>
<td>45 (8.0)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><em>E. coli</em></td>
<td>51 (9.1)</td>
<td>2 (0.4)</td>
<td>Positive agglutination rough with some background cloudiness</td>
</tr>
<tr>
<td>Citrobacter spp.</td>
<td>185 (32.9)</td>
<td>3 (0.5)</td>
<td>Positive agglutination rough with some background cloudiness</td>
</tr>
<tr>
<td>Hafnia spp.</td>
<td>227 (40.4)</td>
<td>2 (0.4)</td>
<td>Positive agglutination rough with some background cloudiness</td>
</tr>
<tr>
<td>Salmonella spp.</td>
<td>0</td>
<td>3 (0.5)</td>
<td>Good agglutination, serotyped as Salmonella paratyphi A</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>552</strong></td>
<td><strong>10</strong></td>
<td><strong>562 organisms tested</strong></td>
</tr>
</tbody>
</table>

**TABLE 2**

<table>
<thead>
<tr>
<th>No. of Salmonella Serotypes Tested</th>
<th>Positive Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>85</td>
<td>85</td>
</tr>
</tbody>
</table>

These results showed the Oxoid Salmonella Latex Test to be an effective screen for distinguishing between Salmonella spp. and other organisms, demonstrating a sensitivity of 100% and a specificity of 98.7%.

15. **REFERENCES**

1. Data on file at Oxoid.
2. Personal Communication from Dr A. C. Baird-Parker.
3. Poster presentation: "Validation of a Latex Agglutination Method for Confirmation of Salmonella colonies from Six Selective Media", I. Fairlamb, T. Organ, Oxoid Ltd., Wade Road, Basingstoke, Hampshire RG24 8PW.
4. Poster presentation: "Evaluation of the Oxoid Salmonella Latex Test as a Screening Test for Salmonella", A. M. Paccagnella, Provincial Laboratory, BC Centre for Disease Control, Vancouver, Canada.