A Kit for the Identification of Salmonella by Slide Latex Agglutination

SALMONELLA LA "SEIKEN"

Salmonella is a Gram negative, asporous short bacillus belonging to family Enterobacteriaceae and is motile by peritrichous flagella.

It causes some infectious diseases in humans including typhoid (typhoid fever and paratyphoid fever), acute enterogastritis and sepsis. The genus *Salmonella* has one species *S. enterica* shich is further divided into seven subspecies according to their biochemical properties and DNA homology. Most salmonella isolated from humans, livestock and poultry is of the subspecies *enterica*. Other subspecies are mainly isolated from reptiles or comprise environmental bacteria.

Salmonella is subdivided into a large number of serotypes by a combination of O antigen (somatic antigen) and H antigen (flagellar antigen).

The general identification procedure of *Salmonella* is as follows;

1) The colony on isolation medium, in which the presence of Salmonella is suspected, is re-cultured on confirmatory medium, such as TSI agar or SIM agar, and the bacterium is isolated. The properties of the isolate including production of hydrogen sulfide and indole, the fermentation of lactose and sucrose, and decarboxylation of lysine are tested.
2) For the isolate for which the properties corresponded to that of Salmonella, a preparatory agglutination reaction is conducted with polyvalent antiserum against salmonella O antigen.
3) Various biochemical properties are then investigated and the serotype (identification of O antigen and H antigen) is determined. In these procedures, the isolation of Salmonella from many colonies on isolation medium and the determination of properties are important for both accuracy and efficacy of the test.

This kit is based on a slide agglutination reaction for distinguishing the colony of Salmonella on isolation medium, and contains adhered latex particles sensitized by purified polyvalent antiserum against Salmonella H antigen.

FEATURES

1. Colonies on isolation medium can be directly tested.
2. Procedures are simple and the reaction time is only 2 minutes.
3. Differences in the reaction between various H serotypes is minimized by use of polyvalent antiserum against salmonella H antigen.
4. The specificity is excellent by confirmation using the Control Latex.

COMPONENTS

1. **Test Latex:** 1 vial 1 ml
   Suspension of latex particles sensitized with polyvalent antibody (rabbit) against Salmonella H antigen, containing 0.1 w/v% sodium azide as a preservative.
2. **Control Latex:** 1 vial 1ml
   Suspension of latex particles sensitized with normal rabbit Ig G, containing 0.1 w/v % sodium azide as a preservative.

3. **Positive Control:** 1 vial 0.5 ml
   Suspension of inactivated Salmonella, cells containing 0.1 w/v% sodium azide as a preservative.
4. **Reaction Agglutination Plates:** 18 plates
5. **Sticks:** 80 pcs.

APPLICATION

Distinction of Salmonella from digestive tract-derived bacteria.

PRINCIPLE

Latex particles sensitized with polyvalent antibody against Salmonella H antigen specifically react with Salmonella flagella in a specimen and cause agglutination. this kit is based on this principle and utilizes slide agglutination.

PROCEDURES

1. **Instrument**
   Platinum loop
2. **Prepararion of Reagent**
   All the reagents are used as supplied.
3. **Preparation of Specimen**
   Colonies on isolation medium, in which Salmonella is thought to exist due to their properties, are used as is.
4. **Procedures**
   1) One drop each of the Test Latex and Control Latex is added to the circles of the reaction plate.
   2) A specimen is collected from a colony using a platinum loop and the same amount is added to each of the circles.
   3) Mix the contents of each well to homogeneity with a new stick for each circle.
   4) Rotate the reaction plate by hand for 2 minutes.
   5) Judge the result visibly in the light immediately after the reaction.
   6) Use a drop of Positive Control as a specimen to clarify the accuracy of the reagents. The reaction procedures are the same as for the specimen.

NOTE

1. The sensitivity of the kit is excellent so the quantity of specimen should be smaller than for other slide agglutination reagents. Excess specimen may cause a false positive or other nonspecific reaction.
2. The volume of specimen for both the Test Latex and Control Latex should be about the same. When the volume of specimen for one reagent is markedly different from that for the other reagent, spurious agglutination may occur, incorrectly.

INTERPRETATION

The criteria of interpretation are as follows;

<table>
<tr><td rowspan="2">When no agglutination is caused by the Control Latex, and .....</td><td>Obvious agglutination is caused by the Test Latex.</td><td>Positive</td></tr>
<tr><td>No agglutination is caused by the Test Latex.</td><td>Negative</td></tr>
<tr><td>When agglutination is caused by the Control Latex.</td><td colspan="2">No interpretation can be made.</td></tr>
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SPECIFICITY

The specificity of SALMONELLA LA "SEIKEN" was tested on 103 strains of *Salmonella*, 50 strains of *Citrobacter*, 20 strains of *Escherichia coli*, 4 strains of *Yersinia enterocolitica*, 4 strains of *Klebsiella* and 6 strains of *Shigella*. The results are as follows;

Type and Number of Bacteria		Positive	Negative
Salmonella	103	103*	0
Citrobacter	50	0	50
E. coli	20	0	20
Y. enterocolitica	4	0	4
Klebsiella	4	0	4
Shigella	6	0	6

*The figures represent the number of strains.

PRECAUTIONS

1. The reagents are only for the distinction of colonies on isolation medium. Identification of bacteria should be made using tests for biochemical properties.
2. The reagents are for in vitro diagnostic use only.
3. The reagents should not be frozen. Allow the reagents to stand at room temperature for at least 30 minutes before use.
4. The edge of the reaction plates fold along the dotted lines.
5. Shake the Latex reagents and Positive Control well to form a homogeneous suspension and wipe the tip of the nozzle of the bottle with clean wiper before use. Keep the bottle vertically when adding reagents.
6. The caps of each reagent should not be interchanged.
7. Active bacteria and all the tools used should be immersed in 0.1% sodium hypochlorite solution (effective chlorine: 1,000 ppm or more) for at least 1 hour or sterilized by autoclaving at 121°C for 20 minutes before disposal.
8. Sodium azide contained in the reagents may produce explosive heavy metal azides by reaction with lead or coppers. All the reagents should be disposed of with a large amount of water.
9. The use of a reagent with that of a different lot should be avoided.

STORAGE AND EXPIRATION

Store the reagent at 2–10°C, up to expiration date on the label.

PACKAGE

SALMONELLA LA "SEIKEN" for 30 tests