

## HiPer<sup>®</sup> Latex Agglutination Teaching Kit

**Product Code: HTI001**

**Number of experiments that can be performed: 20**

**Duration of Experiment: ~ 15 minutes**

### **Storage Instructions:**

- The kit is stable for 12 months from the date of manufacture
- Store the Antigen solution, Positive and Negative control at 2-8°C
- Other kit contents can be stored at room temperature (15-25°C)

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## Aim:

To learn the technique of latex agglutination.

## Introduction:

Agglutination is a reaction of clumping together of antigen-bearing cells, microorganisms or particles in the presence of specific antibodies (agglutinins) in a suspension. Reaction time for agglutination to occur is shorter compared to other antigen-antibody interactions. Latex agglutination makes use of latex particles which are built from different organic materials to a desired diameter, and may be functionalized with chemical groups to facilitate attachment of molecules. Latex agglutination tests have been in use since 1956 to detect a wide range of analytes in the clinical laboratory. The first description of a test based on latex agglutination was the 'Rheumatoid Factor Test' proposed by Singer and Plotz in 1956. It can be used for detection of both antigen and antibody. This technique utilizes visible agglutination as the end point to detect the reaction between the antigen and antibodies.

## Principle:

In latex agglutination, antibodies are adsorbed to the latex particles (under appropriate ionic and alkaline pH conditions) by binding to the Fc region of antibodies leaving Fab region free to interact with antigen present in the applied specimen. The use of smaller latex particle has improved the sensitivity and reagent longevity of latex agglutination.

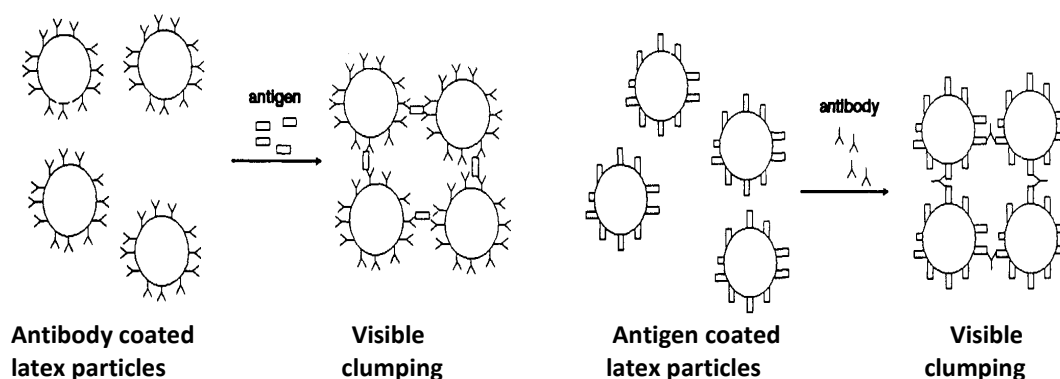


Fig 1: Principle of latex agglutination

## **Applications of Latex Agglutination Tests:**

Latex agglutination tests are very popular in clinical laboratories. These tests are applied to the detection of many infectious diseases.

- To detect microbial and viral infections, autoimmune diseases, hormones, drugs and serum proteins.
- To check for certain antibodies or antigens in a variety of bodily fluids including saliva, urine, cerebrospinal fluid, and blood.

HiPer® Latex Agglutination Teaching Kit applies the above principle for rapid screening of multiple samples for infection, microbial contamination or microbial identification. For ease of handling, the Latex Agglutination Teaching Kit is provided with ready to use reagents. The kit gives direct results in the form of visible agglutination. In this kit three solutions are provided, i.e. Antigen solution, Negative control & Positive control. The Antigen solution (preserved with 0.099% sodium azide) contains inactivated antigens reactive with Test reagent and non-reactive with Control reagent. The Negative

control contains latex particles coated with non-specific antibodies preserved in 0.099% sodium azide. The Positive control contains latex particles coated with specific antibodies preserved in 0.099% sodium azide.

### Kit Contents:

**Table 1: Enlists the materials provided in this kit with their quantity and recommended storage**

Sr. No.	Product Code	Materials Provided	Quantity	Storage
			20 expts	
1	TKC121	Antigen Solution- Solution A	1.2 ml	2-8 <sup>0</sup> C
2	TKC122	Negative Control- Solution B	0.6 ml	2-8 <sup>0</sup> C
3	TKC123	Positive Control- Solution C	0.6 ml	2-8 <sup>0</sup> C
4	TKC124	Disposable Agglutination Cards	5 Nos.	RT
5	TKC125	Disposable Mixing Sticks	40 Nos.	RT

### Storage:

HiPer<sup>®</sup> Latex Agglutination Teaching Kit is stable for 12 months from the date of manufacture without showing any reduction in performance. On receipt, store the Antigen solution, Positive control and Negative control at 2-8°C.

### Important Instructions:

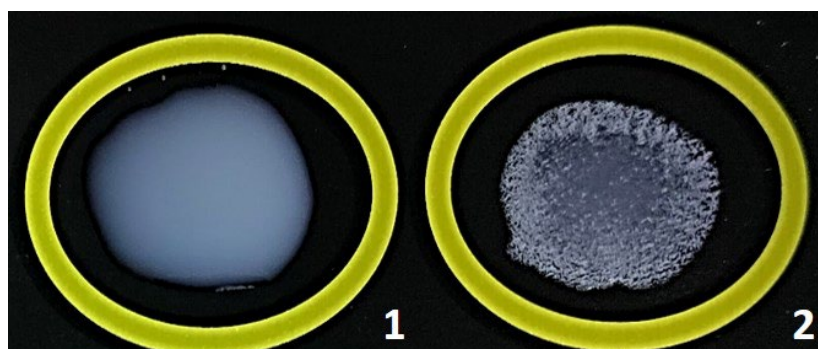
1. Latex Test Kit should be used according to the kit instructions.
2. Allow all reagents to reach room temperature before use.
3. Do not dilute any of the kit reagents.
4. Do not intermix the reagents.
5. Do not freeze any of the kit reagents.
6. Ensure the agglutination card is clean and dry prior to use.
7. Wear gloves while handling the reagents.
8. Use separate mixing stick for each circle.

### Procedure:

1. Before starting the experiment, gently mix all the bottles provided in this kit.
2. Add 1 drop of Solution A (25µL) into the circles marked as 1 and 2 of a clean dry agglutination card.
3. Add 1 drop of Solution B (25µL) into circle 1.
4. Add 1 drop of Solution C (25µL) to circle 2.
5. Spread the drops over the area of both the circles using fresh mixing stick for each circle.
6. Rock the card gently (approximately two to three minutes) and observe for agglutination. An agglutination reaction is indicated by visible aggregation of the latex particles.
7. The circles marked as 3, 4 and 5, 6 can be used similarly
8. After performing the experiment, discard the slides and mixing sticks.

### Observation and Result:

After mixing the Antigen Solution with Positive control and Negative control separately observe for the agglutination reaction.



1: Corresponds to Negative result

2: Corresponds to Positive result

**Fig 2: Agglutination reaction observed after performing latex agglutination test**

### Interpretation:

The results can be interpreted as follows:

Circle Number	Test	Interpretation
1	Negative	No Agglutination seen
2	Positive	Agglutination seen

- For circle 1, the inactivated antigens of the Antigen solution do not bind to the latex particles coated with non-specific antibodies of the Negative control. Hence, no agglutination is seen.
- For circle 2, the inactivated antigens of the Antigen solution bind to the latex particles coated with specific antibodies of the Positive control. Hence, agglutination is seen.









### Troubleshooting Guide:

Sr. No	Problem	Possible Cause	Solution
1	False positive result	The reagents were mixed with each other	Ensure that the reagents are added properly into the respective well without spilling to the sides
		Incubated for a longer time	The results should be read within the time period mentioned in the brochure
2	No agglutination observed	The reagents are not stored under proper conditions	Ensure that the latex reagent, positive and negative control are stored in refrigerator (2-8°C)

### Technical Assistance:

At HiMedia we pride ourselves on the quality and availability of our technical support. For any kind of technical assistance mail at [mb@himedialabs.com](mailto:mb@himedialabs.com)

**Symbol:**

	Manufacturer		Do not use if package is damaged
	Batch code		Temperature limit
	Date of manufacture (YYYY-MM)		Consult instructions for use
	Use-by date (YYYY-MM)		Catalogue number

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**Disclaimer :**

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