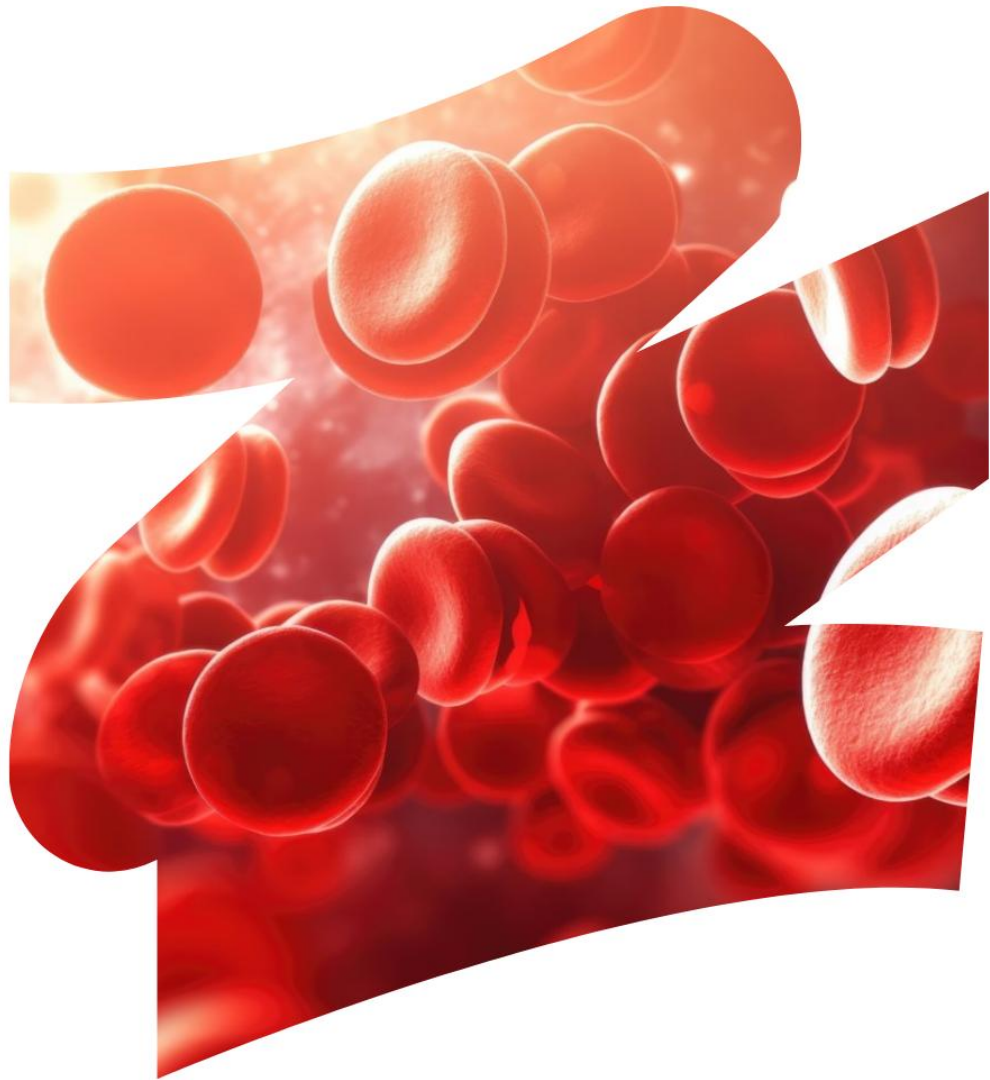




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SN VDRL Test Teaching Kit

Innovation Speaks

SN VDRL Test Teaching Kit

Product Code: SNLS –TK215

Number of experiments that can be performed:

10 Duration of Experiment: 1 hour

Storage Instructions:

- The kit is stable for 12 months from the date of manufacture
- Store the VDRL Reagent, 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 detect the presence of Treponemes which are responsible for venereal diseases like syphilis.

Introduction:

Syphilis is a sexually transmitted infection (STI) caused by the spirochete bacterium *Treponema pallidum*. To diagnose this disease, a widely used serological test called the VDRL (Venereal Disease Research Laboratory) test was developed by Harris, Rosenberg, and Riedel in 1946. The VDRL is a non-treponemal test, meaning it does not directly detect the bacterium but rather the antibodies produced in response to cellular damage. These antibodies, known as reagins, are formed against lipid materials released from damaged host cells. In the test, these reagins react with a synthetic lipid antigen called cardiolipin, resulting in a visible flocculation reaction or aggregation. The presence of this reaction suggests a possible syphilis infection. However, because non-treponemal tests can yield false positives, a confirmatory treponemal test (like TPHA or FTA-ABS) is required for accurate diagnosis. The VDRL test is simple, cost-effective, and frequently used for mass screening. It is especially valuable in detecting early and latent stages of syphilis. Proper interpretation of VDRL results, along with clinical correlation, is essential for accurate diagnosis and management of syphilis.

Principle:

Treponema pallidum, the bacterium responsible for syphilis, is a Gram-negative spirochete with a distinctive spiral shape. It is an obligate human pathogen that relies heavily on its host due to its inability to synthesize many essential nutrients. Various subspecies of *T. pallidum* are known to cause diseases such as syphilis, yaws, pinta, and bejel. The VDRL (Venereal Disease Research Laboratory) test is a non-treponemal serological screening test used to detect syphilis infections. It is based on the flocculation reaction that occurs when antibodies produced during syphilitic infection, known as reagins, interact with a specific non-treponemal antigen. This antigen is a mixture of cardiolipin, lecithin, and cholesterol, which mimics components released from damaged host cells and the surface of the treponeme. When a patient's serum containing these antibodies is mixed with the antigen on a slide, antigen-antibody complexes form, resulting in visible clumping or flocculation. This reaction can be seen with the naked eye or under a light microscope. Syphilis infection triggers the immune system to produce Treponemal antibodies: directed specifically against *T. pallidum*.

Non-treponemal antibodies (reagins): formed in response to lipoidal antigens released from injured host tissues and the pathogen. The VDRL test detects these non-treponemal antibodies, making it ideal for early screening, though it is not specific to syphilis alone. Hence, positive results are typically confirmed using specific treponemal tests such as TPHA or FTA-ABS. The VDRL Teaching Kit uses this principle for rapid, slide-based flocculation testing. It serves as a valuable educational and diagnostic tool for screening patient samples for syphilitic infection. Additionally, this test is beneficial in monitoring treatment response and disease progression.

Kit Contents:

Sr. No.	Materials Provided	Quantity	Storage
		10 expts	
1	VDRL Reagent	0.9 ml	2-8°C
2	Positive Control	0.3 ml	2-8°C
3	Negative Control	0.3 ml	2-8°C
4	Glass slide for VDRL	1 No.	RT
5	Disposable mixing sticks	50 Nos.	RT

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



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Materials Required But Not Provided:

Test Serum Sample, Micropipettes, Light microscope, Tips, Gloves and Masks.

Storage:

SN VDRL Test Teaching Kit is stable for 12 months from the date of manufacture without showing any reduction in performance. On receipt, store VDRL reagent, Positive control and Negative control at 2-8°C.

Important Instructions:

1. SN VDRL Test Teaching 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 glass slide is clean and dry prior to use.
7. Wear masks and gloves while handling the reagents.

Procedure:

1. Before starting the experiment, bring all reagents to room temperature and mix well.
2. Take 20 μ l of test sample in a cavity of glass slide provided in the kit.
3. Add 20 μ l of VDRL reagent to the surface of the test sample in the same cavity. Do not touch the tip to the liquid surface.
4. Take 20 μ l each of positive and negative control in different cavity.
5. Then add 20 μ l of VDRL reagent to both positive and negative control cavity.
6. Mix well with disposable mixing sticks. While mixing use different mixing stick every time.
7. Rotate the slide continuously for 4 minutes and observe for flocculation, which can be seen with naked eye or better under light microscope.

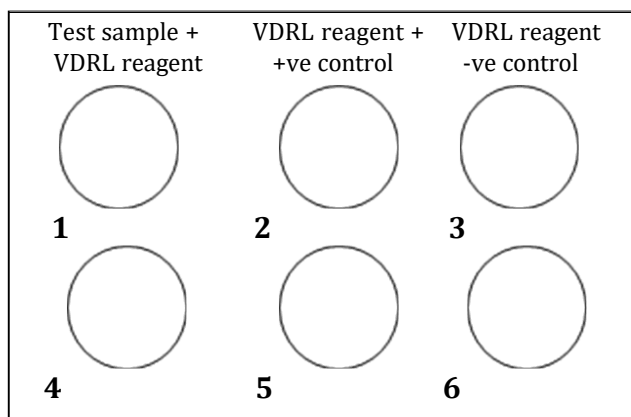


Fig 1: Diagrammatic representation of VDRL test



Observation and Result:

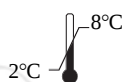
After mixing the VDRL reagent with Positive control, Negative control and Test sample separately observe for flocculation.

Interpretation:

Flocculation in Test sample circle is considered a positive reaction, indicating the presence of treponemes at a significant and detectable level.

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 onto 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 flocculation observed	The reagents are not stored under proper conditions	Ensure that the VDRL reagent, positive and negative control are stored in refrigerator (2-8°C)



Storage temperature



Do not use if package is damaged



**SHANKARANARAYANA
LIFE SCIENCES**
A NEW GENERATION COMPANY



SN Research Unit



SN Manufacturing Unit



SN Diagnostic Unit

Contact Us -

☎ +91- 63613 81129 / 99005 05076

🌐 www.snlifesciences.in

✉ sales@snlifesciences.com / drmondal@snlifesciences.com

🏠 No.57/90, 3rd Road, 4th Phase Bommasandra Industrial Area,
Bengaluru - 560099

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