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**Lab Dept:** Serology

**Test Name:** SYPHILIS AB W/ REFLEX RPR

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***General Information***

**Lab Order Codes:** SYPHT

**Synonyms:** VDRL; Rapid Plasma Reagin; ART; Syphilis Test; Syphilis IgG

**CPT Codes:** 86780 – Syphilis Ab (when result is nonreactive)  
0064U – Antibody, T pallidum, total and RPR, immunoassay, qualitative (when result is equivocal or reactive)  
86592 – Syphilis test; qualitative (if appropriate, with an additional charge)  
86780 – Syphilis Ab by TP-PA (if appropriate)  
86593 – Syphilis Test, quantitative (RPR Titer) (if appropriate)

**Test Includes:** If Syphilis Total Ab is reactive or equivocal, RPR (Rapid Plasma Reagin) will be performed at an additional charge as confirmation. If RPR is reactive, RPR Titer will be performed at an additional charge. If RPR (Rapid Plasma Reagin) is nonreactive, Syphilis TP-PA will be performed at an additional charge.

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***Logistics***

**Test Indications:** An aid in the diagnosis of recent or past Treponema pallidum infection.

**Lab Testing Sections:** Serology - Sendouts

**Referred to:** Mayo Medical Laboratories (MML Test: SYPHT with possible reflexes: RRPS, RTPPA, RRPRQ)

**Phone Numbers:** MIN Lab: 612-813-6280

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours

**Turnaround Time:** 1 – 2 days

**Special Instructions:** N/A

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***Specimen***

**Specimen Type:** Blood

**Container:** SST (Gold, marble or red)

|                             |  |
|-----------------------------|--|
| <b>Draw Volume:</b>         | 1.5 mL (Minimum: 1.2 mL) blood   |
| <b>Processed Volume:</b>    | 0.5 mL (Minimum: 0.4 mL) serum   |
| <b>Collection:</b>          | Routine blood collection   |
| <b>Special Processing:</b>  | Lab Staff: Centrifuge specimen, remove serum aliquot into screw-capped round bottom plastic vial. Store and ship at refrigerated temperatures. Forward promptly. |
| <b>Patient Preparation:</b> | None   |
| <b>Sample Rejection:</b>    | Gross hemolysis; heat inactivated specimen; gross lipemia; mislabeled or unlabeled specimens   |

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### ***Interpretive***

**Reference Range:** Non-reactive

Interpretation: Syphilis screening at Mayo Clinic is performed by using the reverse algorithm, which first tests for *Treponema pallidum* total antibody using an automated multiplex flow immunoassay (MFI). A reactive treponemal test suggests infection with *Treponema pallidum* at some point in the past or currently. This is because treponemal tests (eg, EIA, MFI, or fluorescent treponemal antibody-absorbed: FTA-ABS) may remain active for life, even following adequate therapy. Therefore, the results of a non-treponemal assay, such as the rapid plasma reagin (RPR), are needed to provide information on a patient's disease state and history of therapy.

In some patients, the results of the treponemal screening test ) and RPR may be discordant (eg, syphilis screening positive and RPR negative). To discriminate between falsely reactive screening result and past syphilis, CDC recommends performing a second treponemal-specific antibody test using a method that is different from the initial screen test (eg, *Treponema pallidum* particle agglutination: TP-PA).

In the setting of a positive syphilis screening result and a negative RPR, a positive TP-PA result is consistent with either: 1. Past, successfully treated syphilis, 2. Early syphilis with undetectable RPR titers, or 3. Late/latent syphilis in patient who do not have a history of treatment for syphilis. Further historical evaluation is necessary to distinguish between these two scenarios. (See Table below)

In the setting of a positive syphilis screening result and a negative RPR, a negative TP-PA result is most consistent with a falsely reactive syphilis screen. (See Table below). If syphilis remains clinically suspected, a second serum specimen should be submitted for testing.

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|                                | Test and Result      |     |          |  |  |
|--------------------------------|----------------------|-----|----------|--|--|
| Pt History                     | EIA/CIA/MFI          | RPR | TP-PA    | Interpretation   | Follow-up  |
| Unknown pt history of syphilis | (NR)<br>Non-reactive | N/A | N/A      | No serologic evidence of syphilis                                  | None, unless clinically indicated (eg, early syphilis) |
| Unknown pt history of syphilis | (R)<br>Reactive      | R   | N/A      | Untreated or recently treated syphilis                             | * See CDC treatment guidelines                         |
| Unknown pt history of syphilis | R                    | NR  | NR       | Probable false-positive test                                       | No follow-up testing unless clinically indicated       |
| Unknown pt history of syphilis | R                    | NR  | R        | Possible syphilis (early or latent) or previously treated syphilis | Historical and clinical evaluation required            |
| Known history of syphilis      | R                    | NR  | R or N/A | Past, successfully treated syphilis                                | None   |

CIA, chemiluminescence immunoassay; EIA, enzyme immunoassay; MFI, multiplex flow immunoassay; N/A, not applicable; RPR, rapid plasma reagin; TP-PA, Treponema pallidum particle agglutination; NR, Non-reactive; R, Reactive

\*<http://www.cdc.gov/std/treatment/2010>

**Critical Values:**

N/A

**Limitations:**

- Despite active syphilis, serologic tests may be negative in severely immunosuppressed patients such as those with AIDS.
- In very early cases of primary syphilis (ie, presence of chancre), serology tests for syphilis may be negative.
- In cases of untreated, late or latent syphilis, the result of the rapid plasma reagin (RPR) may be negative. However, the syphilis screening test multiplex flow immunoassay (MFI) and T pallidum particle agglutination test (TP-PA) should be positive. A thorough clinical and historical evaluation should be performed to determine treatment for latent syphilis is required.
- Results should be considered in the context of all available clinical laboratory tests.

**Methodology:**

Syphilis Total Ab: Multiplex Flow Immunoassay  
RPR/RPR Titer: Flocculation/Agglutination  
Syphilis Ab, TP-PA: Particle Agglutination

**References:**

[Mayo Clinical Laboratories](#) April 2019

**Updates:**

12/18/12: Test moved from internal test to a referral to Mayo.  
7/16/13: Updated volume and expanded interpretation information  
4/24/17: Updated tube type.  
5/17/17: Added information on RPR Titer reflex test.  
4/16/19: Testing updated to test Total Ab, previously IgG.