
Lab Dept: Serology

Test Name: RPR (SYPHILIS IGG W/REFLEX)

General Information

Lab Order Codes: RPRM

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

CPT Codes: 86780 – Syphilis Ab, IgG
86592 – Syphilis test; qualitative (if appropriate, with an additional charge)
86780 – Syphilis Ab by TP-PA
86593 – Syphilis Test, quantitative (RPR Titer)

Test Includes: If Syphilis IgG is positive, RPR (Rapid Plasma Reagin) will be performed at an additional charge as confirmation. If RPR is positive, RPR Titer will be performed at an additional charge.
If RPR (Rapid Plasma Reagin) is negative, Syphilis TP-PA will be performed at an additional charge.

Logistics

Test Indications: An aid in the diagnosis of active Treponema pallidum infection.

Lab Testing Sections: Serology - Sendouts

Referred to: Mayo Medical Laboratories (MML Test: SYPGR with possible reflexes: RRPR, RTPPA, RRPRQ)

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 1 – 2 days, 4 days if positive

Special Instructions: N/A

Specimen

Specimen Type: Blood

Container: SST (Gold, marble or red)

Draw Volume:	3 mL (Minimum: 3 mL) blood
Processed Volume:	1 mL (Minimum: 1 mL) serum
Collection:	Routine venipuncture
Special Processing:	Lab Staff: Centrifuge specimen, remove serum aliquot into screw-capped round bottom plastic vial. Store and ship at refrigerated temperatures. Forward promptly.
Patient Preparation:	None
Sample Rejection:	Gross hemolysis; heat inactivated specimen; gross lipemia; mislabeled or unlabeled specimens

Interpretive

Reference Range: Negative

Interpretation: Syphilis screening at Mayo Clinic is performed by using the reverse algorithm, which first tests for *Treponema pallidum* specific IgG antibodies using an automated multiplex flow immunoassay (MFI). A positive IgG treponemal test suggests infection with *Treponema pallidum* at some point in the past, but does not distinguish between treated and untreated infections. 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 (syphilis IgG) and RPR may be discordant (eg, syphilis IgG 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 IgG 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 IgG screening result and a negative RPR, a negative TP-PA result is most consistent with a falsely reactive syphilis IgG screen. (See Table below). If syphilis remains clinically suspected, a second serum specimen should be submitted for testing.

	Test and Result				
Pt History	EIA/CIA/MFI	RPR	TP-PA	Interpretation	Follow-up
Unknown pt history of syphilis	(NR) Non-reactive	N/A	N/A	No serologic evidence of syphilis	None, unless clinically indicated (eg, early syphilis)
Unknown pt history of syphilis	(R) 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](http://www.cdc.gov/std/treatment/2010)

Critical Values:

N/A

Limitations:

This test is not offered as a screening or confirmatory test for blood donor specimens. Despite active syphilis, serologic tests may be negative in severely immunosuppressed patients such as those with AIDS. In very early cases of primary syphilis, serology tests for syphilis may be negative. In cases of untreated, late/latent syphilis, the result of rapid plasma reagin may be negative. However, the syphilis screen (MFI) and TP-PA should be positive. A thorough clinical and historical evaluation should be performed to determine if treatment for latent syphilis is required. Results should be considered in the context of all available clinical and laboratory data.

Methodology:

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

References:

[Mayo Medical Laboratories](#) May 2017

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.