Lab Dept: Serology

Test Name: SYPHILIS IGG WITH REFLEX, SERUM

General Information

Lab Order Codes:	SYPHT
Synonyms:	VDRL; Rapid Plasma Reagin; RPR; ART; Syphilis Test; Syphilis Antibody
CPT Codes:	86780 – Syphilis Ab (when result is nonreactive) 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.

Logistics

Test Indications:	This testing should be used to assess for infection with *Treponema pallidum*. Syphilis screening at Mayo Clinic and Mayo Clinic Laboratories is performed using the reverse screening algorithm. This test is not useful for diagnosis of congenital syphilis.
Lab Testing Sections:	Serology - Sendouts
Referred to:	Mayo Clinic Laboratories (MML Test: SYPH1 with possible reflexes: RRRPS, RTPPA, RRPRQ)
Phone Numbers:	MIN Lab: 612-813-6280 STP Lab: 651-220-6550
Test Availability:	Daily, 24 hours
Turnaround Time:	1 – 4 days
Special Instructions:	N/A

Specimen

Specimen Type:	Blood
Container:	SST (Gold, marble or red)
Draw Volume:	4.5 mL (Minimum: 3.0 mL) blood
Processed Volume:	1.5 mL (Minimum: 1.0 mL) serum
Collection:	Routine blood collection
Special Processing:	Lab Staff: Centrifuge specimen, remove serum aliquot into screw-capped round bottom plastic vial. Store and ship at frozen temperatures. Forward promptly. Specimen stable for 14 days frozen.
Patient Preparation:	None
Sample Rejection:	Gross hemolysis; heat inactivated specimen; gross lipemia; mislabeled or unlabeled specimens

Interpretive

Reference Range: Non-reactive or negative

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.

	Test and Result				
Pt History	**EIA/CIA/ MFI**	**RPR**	**TP-PA**	**Interpretation**	**Follow-up**
Unknown history of syphilis	(NR) Non-reactive	N/A	N/A	No serologic evidence of syphilis	None, unless clinically indicated (eg, early syphilis)
Unknown history of syphilis	(R) Reactive	R	N/A	Untreated or recently treated syphilis	* See CDC treatment guidelines

Unknown history of syphilis	R	NR	NR	Probable false-positive test	No follow-up testing unless clinically indicated
Unknown 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

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 (i.e, 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 IgG Ab: Enzyme Immunoassay (EIA)
RPR/RPR Titer: Flocculation/Agglutination
Syphilis Ab, TP-PA: Particle Agglutination

References:

Mayo Clinical Laboratories December 2024

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.
2/2/22: Test volume/storage for test down update.
12/27/2024: Updated display name, methodology, specimen volume requirements, turnaround time, and test indications. Added specimen stability.