MAYO CLINIC LABORATORIES

Test Definition: SCLAM

Chlamydia Serology, Serum

Overview

Useful For

Aiding in the clinical diagnosis of chlamydial infections

This test is **not intended for** medical-legal use.

Testing Algorithm

Includes *Chlamydophila pneumoniae*, *Chlamydophila psittaci*, and *Chlamydia trachomatis*.

Method Name

Micro-Immunofluorescent Antibody (MIF) Assay

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Specimen Volume: 0.2 mL

Forms

If not ordering electronically, complete, print, and send a Microbiology Test Request (T244) with the specimen.

Specimen Minimum Volume

0.15 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container

Serum	Refrigerated (preferred)	30 days	
	Frozen	30 days	

Clinical & Interpretive

Clinical Information

Members of the family Chlamydiaceae are small, nonmotile, gram-negative, obligate intracellular organisms that grow in the cytoplasm of host cells. Two genera of clinical importance are *Chlamydia,* which includes *Chlamydia trachomatis*, and *Chlamydophila,* which includes *Chlamydophila pneumoniae* and *Chlamydophila psittaci.* These organisms share many features of bacteria and are susceptible to antibiotic therapy. They are also similar to viruses, requiring living cells for multiplication.

The chlamydial life cycle can be divided into 2 distinct phases: an extracellular, nonreplicating, infectiousstage and an obligate intracellular, replicating, noninfectious stage. The infectious form, or elementary body (EB), attaches to the target cell membrane and enters the cell via a phagosome. After cell entry, the EB reorganizes into reticulate particles (forming inclusion bodies) and binary fission begins. After 18 to 24 hours, reticulate particles condense to form EBs. These new EBs are released, beginning another infection cycle.

C psittaci is the causative agent of psittacosis, a disease characterized by pneumonia, headache, altered mentation, and hepatosplenomegaly. Psittacosis is acquired by airborne transmission from infected birds.

C pneumoniae (formerly known as Taiwan acute respiratory agent: TWAR and, more recently, as *Chlamydia pneumoniae*) causes pneumonia in humans. It is unique because it is a primary pathogen of humans, is spread from human to human, and apparently has no animal or bird host. *Chlamydophila pneumoniae* is responsible for approximately 10% of pneumonia cases.

C trachomatis has been implicated in a wide variety of infections in humans. It is a common cause of nongonococcal urethritis and cervicitis, and many systemic complications of chlamydial infections have been described. In females, this organism is a cause of pelvic inflammatory disease, salpingitis, and endometritis. In males, epididymitis and Reiter syndrome occur. Lymphogranuloma venereum is a sexually transmitted infection caused by *C trachomatis*. It presents with a transient primary genital lesion followed by suppurative regional lymphadenopathy. Occasionally, severe proctitis or proctocolitis may develop. *C trachomatis* also causes ophthalmologic infections, such as trachoma (rare in the United States), adult inclusion conjunctivitis and inclusion conjunctivitis in neonates. These disorders have traditionally been diagnosed by cytologic detection or culture. However, molecular detection methods (CTRNA / *Chlamydia trachomatis* by Nucleic Acid Amplification [HOLOGIC], Varies) may now represent a more sensitive diagnostic approach.

Fitz-Hugh-Curtis syndrome (perihepatitis) has been associated with chlamydiae.

Reference Values

Chlamydophila pneumoniae
IgG: <1:64
IgM: <1:10

Chlamydophila psittaci

IgG: <1:64
IgM: <1:10

Chlamydia trachomatis
IgG: <1:64
IgM: <1:10

Interpretation

IgG:
Chlamydophila pneumoniae
> or =1:512
IgG endpoint titers of 1:512 or more are considered presumptive evidence of current infection.

<1:512 and > or =1:64
A single specimen endpoint titer of from 1:64 to 1:512 should be considered evidence of infection at an undetermined time. A second specimen drawn 10 to 21 days after the original draw should be tested in parallel with the first. If the second specimen exhibits a titer 1:512 or more or a 4-fold increase over that of the initial specimen, current (acute) infection is indicated. Unchanging titers from 1:64 to 1:512 suggest past infection.

<1:64
IgG endpoint titers below 1:64 suggest that the patient does not have a current infection. These antibody levels may be found in patients with either no history of chlamydial infection or those with past infection whose antibody levels have dropped below detectable levels.

Chlamydophila pneumoniae antibody is detectable in 25% to 45% of adults tested.

Chlamydophila psittaci and *Chlamydia trachomatis*
> or =1:64
IgG endpoint titers of 1:64 or more are considered presumptive evidence of current infection.

<1:64
IgG endpoint titers below 1:64 suggest that the patient does not have a current infection. These antibody levels may be found in patients with either no history of chlamydial infection or those with past infection whose antibody levels have dropped below detectable levels.

IgM
Chlamydophila pneumoniae, Chlamydophila psittaci, and *Chlamydia trachomatis*
> or =1:10
IgM endpoint titers of 1:10 or more are considered presumptive evidence of infection.

<1:10
IgM endpoint titers below 1:10 suggest that the patient does not have a current infection. These antibody levels may be found in patients with either no history of chlamydial infection or those with past infection whose antibody levels have dropped below detectable levels.

Cautions

Antichlamydial IgG can persist for years. All results from chlamydial serologies must correlate with clinical history and other data available to the physician.

Specimens collected too early during primary infection may not contain detectable antibodies. If chlamydial infection is suspected, a second specimen should be collected 10 to 21 days later and tested in parallel with the original specimen.

During a primary *Chlamydia* infection, the early antibody response may be cross-reactive with multiple *Chlamydia* species.

The *Chlamydia* microimmunofluorescent antibody assay utilizes serotypes D-K of *Chlamydia trachomatis*. Sera from suspected cases of lymphogranuloma venereum (LGV) should be tested by a Lymphogranuloma Venereum Differentiation Antibody Panel. LGV testing is not performed by Mayo Clinic Laboratories; call 800-533-1710 for further assistance.

Due to the limited sensitivity and specificity of *Chlamydia* serologic tests, patients with suspected *C trachomatis* infection should be tested by a molecular method (eg, CTRNA / *Chlamydia trachomatis* by Nucleic Acid Amplification [HOLOGIC], Varies) when clinical manifestations are present.

Clinical Reference

1. Movahed MR: Infection with *Chlamydia pneumoniae* and atherosclerosis: a review. J South Carolina Med Assoc. 1999;95:303-308
2. Smith T: *Chlamydia*. In: Schmidt N, Emmons R, eds. Diagnostic procedures for viral, rickettsial and chlamydial infections. 6th ed. APHA; 1989: 1165-1198
3. Sheffield PA, Moore DE, Voigt LF, et al: The association between *Chlamydia trachomatis* serology and pelvic damage in women with tubal ectopic gestations. Fertil Steril. 1993;60:970-975
4. Batteiger BE, Tang M: *Chlamydia trachomatis* (trachoma and urogenital infections). In: Bennett JE, Dolin R, Blaser MJ, eds. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 9th ed. Elsevier; 2020:2301-2319
5. Schlossberg D: Psittacosis (due to *Chlamydia psittaci*). In: Bennett JE, Dolin R, Blaser MJ, eds. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 9th ed. Elsevier; 2020:2320-2322
6. Hammerschlag MR, Kohlhoff SA, Gaydos CA: *Chlamydia pneumoniae*. In: Bennett JE, Dolin R, Blaser MJ, eds. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 9th ed. Elsevier; 2020:2323-2331

Performance

Method Description

The microimmunofluorescent antibody assay is a 2-stage "sandwich" procedure. In the first stage, the patient serum is diluted in phosphate-buffered saline, added to appropriate slide wells in contact with the substrate, and incubated. After incubation, the slide is washed in buffered saline to remove unbound serum antibodies. In the second stage, each antigen well is overlaid with fluorescein-labeled antibody to IgG or IgM. The slide is incubated, allowing antigen-antibody complexes to react with the fluorescein-labeled anti-IgG. After the slide is washed, dried, and mounted, it is examined using fluorescence microscopy. Positive reactions appear as bright apple-green fluorescent elementary bodies with a background matrix of yolk sac. Semiquantitative endpoint titers are obtained by testing serial dilutions of positive specimens.(Schachter J: Chlamydiae [Psittacosis-Lymphogranuloma Venereum-Trachome Group]. In: Lennette E, Balows

A, Hausler W, Shadomy H, eds. Manual of Clinical Microbiology. 4th ed. ASM Press; 1985: 856-861; Smith T: *Chlamydia*. In: Schmidt N, Emmons R, eds. Diagnostic procedures for viral, rickettsial and chlamydial infections. 6th ed. APHA; 1989: 1165-1198; package insert: Anti-Chlamydia MIF [IgA, IgG or IgM]. Euroimmun Medizinische Labordiadnostika AG; Version 12/16/2019)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
Same day/1 to 4 days

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact Customer Service.

Test Classification
This test was developed, and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
86631 x 3-IgG
86632 x 3-IgM

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
SCLAM	Chlamydia Serology, S	77166-7

Result ID	Test Result Name	Result LOINC® Value
185	C. pneumoniae IgG	6913-8
186	C. pneumoniae IgM	6914-6
190	C. trachomatis IgG	6919-5
191	C. trachomatis IgM	6920-3

187	C. psittaci IgG	6916-1
188	C. psittaci IgM	6917-9