MAYO CLINIC LABORATORIES

Test Definition: MCTGC

Chlamydia trachomatis and Neisseria gonorrhoeae, Miscellaneous Sites, Nucleic Acid Amplification, Varies

Overview

Useful For

Detecting *Chlamydia trachomatis* and *Neisseria gonorrhoeae* in non-US Food and Drug Administration-approved specimen types

This test is **not intended for use** in medico-legal applications.

This test is **not useful for** the detection of *Chlamydia pneumoniae* or other *Chlamydia* species.

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
MCRNA	C. trach, Misc, Amplified RNA	Yes	Yes
MGRNA	N. gonorr, Misc, Amplified RNA	Yes	Yes

Method Name

Transcription Mediated Amplification

NY State Available

Yes

Specimen

Specimen Type

Varies

Ordering Guidance

This test is used for specimens that **are not** US Food and Drug Administration (FDA) approved for this assay. Acceptable non-FDA-approved specimen types are ocular swabs, and peritoneal fluid.

For FDA-approved specimen types, order CGRNA / *Chlamydia trachomatis* and *Neisseria gonorrhoeae*, Nucleic Acid Amplification, Varies.

Necessary Information

Specimen source is required.

Specimen Required

Submit only 1 of the following specimens:

Specimen Type: Ocular (corneal/conjunctiva)
Supplies:
-Aptima Unisex Swab Collection Kit (T583)
-Aptima Multitest Swab Collection Kit (T584)
Container/Tube: Aptima Multitest Swab or Aptima Unisex Swab
Specimen Volume: 1 Swab
Collection Instructions:
1. Swab site using Aptima Multitest Swab or Aptima Unisex Swab. **Specimens must be collected using either one of these Aptima swabs.**
Note: The white swab provided within the collection kit is a cleaning swab and should not be used for collection. Discard the white cleaning swab.
2. Place collection swab in transport tube provided with the collection kit.
3. Snap off swab at score line so it fits into closed tube.
4. Cap tube securely and label tube with patient's entire name and collection date and time.
5. Maintain specimen at 2 to 30 degrees C (refrigerate temperature is preferred), transport within 60 days of collection.

Specimen Type: Peritoneal fluid (pelvic wash, cul-de-sac fluid)
Supplies: Aptima Specimen Transfer Kit (T652)
Container/Tube: Aptima specimen transfer tube
Specimen Volume: 1 mL
Collection Instructions:
1. Transfer 1 mL of peritoneal fluid directly into the Aptima specimen transfer tube within 24 hours of collection.
2. Cap tube securely and label tube with patient's entire name and collection date and time.
3. Maintain specimen at 2 to 30 degrees C (refrigerate temperature is preferred), transport within 30 days of collection.

Forms

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

Specimen Minimum Volume

See Specimen Required

Reject Due To

Multiple sources on single tube	Reject
Fluid collected in ThinPrep vial before aliquoted into	Reject

Aptima Transfer Tube	

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Varies	Refrigerated (preferred)		APTIMA VIAL
	Ambient		APTIMA VIAL
	Frozen		APTIMA VIAL

Clinical & Interpretive

Clinical Information

Chlamydia is caused by the obligate intracellular bacterium *Chlamydia trachomatis* and is the most prevalent sexually transmitted infection (STI) caused by bacteria in the United States. In 2020, over 1.5 million documented cases were reported to the Centers for Disease Control and Prevention (CDC). Given that 3 out of 4 infected women and 1 out of 2 infected men are initially asymptomatic, the actual prevalence of disease is thought to be much greater than reported. *C trachomatis* causes genitourinary infections in women and men and may be associated with dysuria as well as vaginal, urethral, or rectal discharge. In women, complications include pelvic inflammatory disease, salpingitis, and infertility. Approximately 25% to 30% of women who develop acute salpingitis become infertile. Complications among men are rare but include epididymitis and sterility. Rarely, genital chlamydial infection can cause arthritis with associated skin lesions and ocular inflammation (Reiter syndrome). *C trachomatis* can be transmitted from the mother during delivery and is associated with conjunctivitis and pneumonia in the newborn. Finally, *C trachomatis* may cause hepatitis and pharyngitis in adult.

Once detected, the infection is easily treated by a short course of antibiotic therapy. Annual chlamydia screening is now recommended for all sexually active women aged 25 years or younger and older women with risk factors for infection, such as a new sex partner or multiple sex partners. The CDC also recommends that all pregnant women be given a screening test for chlamydia infection. Repeat testing for test-of-cure is not recommended after treatment with a standard treatment regimen unless patient compliance is in question, reinfection is suspected, or the patient's symptoms persist. Repeat testing of pregnant women, 3 weeks after completion of therapy, is also recommended to ensure therapeutic cure, although residual nucleic acid may remain in the absence of active infection.

Gonorrhea is caused by the bacterium *Neisseria gonorrhoeae*. It is a very common STI, with over 677,000 cases of gonorrhea reported to CDC in 2020. Like chlamydia, many infections in women are asymptomatic, and the true prevalence of gonorrhea is likely much higher than reported. The organism causes genitourinary infections in women and men and may be associated with dysuria as well as vaginal, urethral, or rectal discharge. Complications include pelvic inflammatory disease in women and gonococcal epididymitis and prostatitis in men. Gonococcal bacteremia, pharyngitis, and arthritis may also occur. Infection in men is typically associated with symptoms that would prompt clinical evaluation. Given the risk for asymptomatic infection in women, screening is recommended for women at increased risk of infection (eg, women with previous gonorrhea or other STIs, inconsistent condom use, new or multiple

sex partners, and women in certain demographic groups such as those in communities with high STI prevalence). The CDC currently recommends dual antibiotic treatment due to emerging antimicrobial resistance.

Culture was previously considered to be the gold standard test for diagnosis of *C trachomatis* and *N gonorrhoeae* infections. However, these organisms are labile in vitro, therefore, precise specimen collection, transportation, and processing conditions are required to maintain organism viability, which is necessary for successful culturing. In comparison, nucleic acid amplification testing (NAAT) provides superior sensitivity and specificity and is now considered the reference standard method for diagnosis in most cases. Immunoassays and nonamplification DNA tests are also available for *C trachomatis* and *N gonorrhoeae* detection, but these methods are significantly less sensitive and less specific than NAAT.

Improved screening rates and increased sensitivity of NAAT have resulted in an increased number of accurately diagnosed cases. Improved detection rates result from improved performance characteristics of the assays and patients' easy acceptance of urine testing. Early identification of infection enables sexual partners to seek testing and treatment as soon as possible and reduces the risk of disease spread. Prompt treatment reduces the risk of infertility in women.

Reference Values

Negative

Interpretation

A positive result indicates the presence of nucleic acid from *Chlamydia trachomatis* and/or *Neisseria gonorrhoeae* and strongly supports a diagnosis of chlamydial/gonorrheal infection.

A negative result indicates the absence of nucleic acid from *C trachomatis* and/or *N gonorrhoeae*. A negative result does not exclude the possibility of infection. If clinical indications strongly suggest gonococcal or chlamydial infection, additional specimens should be collected for testing.

A result of inconclusive indicates that a new specimen should be collected.

The predictive value of an assay depends on the prevalence of the disease in any specific population. In settings with a high prevalence of sexually transmitted infections, positive assay results have a high likelihood of being true-positive results. In settings with a low prevalence of sexually transmitted infections, or in any setting in which a patient's clinical signs and symptoms or risk factors are inconsistent with gonococcal or chlamydial urogenital infection, positive results should be carefully assessed, and the patient retested by other methods (eg, culture for *N gonorrhoeae*) if appropriate.

This test has not been shown to cross react with commensal (nonpathogenic) *Neisseria* species present in the oropharynx.

Cautions

This report is intended for clinical monitoring or management of patients; it is not intended for use in medico-legal applications.

Appropriate specimen collection and handling is necessary for optimal assay performance.

Results should be interpreted in conjunction with other laboratory and clinical information.

A negative test result does not exclude the possibility of infection. Improper specimen collection, concurrent antibiotic therapy, presence of inhibitors, or low numbers of organisms in the specimen (ie, below the sensitivity of the test) may cause false-negative test results.

In low-prevalence populations, positive results must be interpreted carefully as false-positive results may occur more frequently than true-positive results in this setting.

In general, this assay should not be used to assess therapeutic success or failure, since nucleic acids from these organisms may persist for 3 weeks or more following antimicrobial therapy.

No interference is expected with swab specimens due to:
-Blood
-Lubricants and spermicides

This assay does not detect *Chlamydia pneumoniae* or other *Chlamydia* species.

Clinical Reference

1. Workowski KA, Bachmann LH, Chan PA, et al. Sexually transmitted infections treatment guidelines, 2021. MMWR Recomm Rep. 2021;70(4):1-187. doi:10.15585/mmwr.rr7004a1
2. Adamson PC, Klausner JD. Diagnostic test for detecting Chlamydia trachomatis and Neisseria gonorrhoeae in rectal and pharyngeal specimens. J Clin Microbiol. 2022;60(4):e0021121. doi:101128/JCM.00211-21

Performance

Method Description

The Hologic Aptima Combo 2 Assay combines the technologies of target capture, transcription-mediated amplification, and dual kinetic assay. The detection of the ribosomal RNA amplification product sequences (amplicon) is achieved using nucleic acid hybridization. Single-stranded chemiluminescent DNA probes are labeled and combined with amplicon to form stable RNA:DNA hybrids. Light emitted from the labeled RNA:DNA hybrids is measured as photon signals in a luminometer.(Package insert: APTIMA Combo 2 Assay, AW-25929-001. Hologic, Inc; Rev 002, 06/2023)

PDF Report

No

Day(s) Performed

Monday through Sunday

Report Available

1 to 4 days

Specimen Retention Time

7 days

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Superior Drive

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 account representative. For assistance, contact Customer Service.

Test Classification

This test has been modified from the manufacturer's instructions. Its performance characteristics were 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

87494

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
MCTGC	Misc C trach/N gonor Amplified RNA	64017-7

Result ID	Test Result Name	Result LOINC® Value
SRC11	SOURCE:	31208-2
34507	C. trach, Misc, Amplified RNA	43304-5
34508	N. gonorr, Misc, Amplified RNA	43305-2
SRC22	SOURCE:	31208-2