MAYO CLINIC LABORATORIES

Test Definition: MHRP

Metamycoplasma hominis, Molecular Detection, PCR, Varies

Overview

Useful For

Rapid, sensitive, and specific identification of *Metamycoplasma hominis* from synovial fluid, genitourinary, reproductive, lower respiratory sources, pleural/chest fluid, pericardial fluid, and wound specimens

This test is **not intended for** medicolegal use.

Testing Algorithm

For more information see Infective Endocarditis: Diagnostic Testing for Identification of Microbiological Etiology

Special Instructions

- Infective Endocarditis: Diagnostic Testing for Identification of Microbiological Etiology

Method Name

Real-Time Polymerase Chain Reaction (PCR) using LightCycler and Fluorescent Resonance Energy Transfer (FRET)

NY State Available

Yes

Specimen

Specimen Type

Varies

Necessary Information

Specimen source is required.

Specimen Required

The high sensitivity of amplification by polymerase chain reaction (PCR) requires the specimen to be processed in an environment in which contamination of the specimen by *Mycoplasma hominis* DNA is not likely.

Submit only 1 of the following specimens:

Specimen Type: Swab
Supplies:
-Culturette (BBL Culture Swab) (T092)
-BD E-Swab (T853)
-M4-RT (T605)
Sources: Vaginal, cervix, urethra, urogenital, chest/mediastinal; bronchus or lung (donor swab); or upper respiratory

sources (only infants <3 months: nasopharynx, nose, throat)
Container/Tube:
Preferred: Culture swab transport system (Dacron or rayon swab with aluminum or plastic shaft with either Stuart or Amies liquid medium)
Acceptable: Swab in transport media: M4, M4-RT, M5, M6, universal transport media, or ESwab
Specimen Volume: 1 swab
Collection Instructions:
Vaginal:
1. Collect specimen by swabbing back and forth over mucosa surface to maximize recovery of cells.
2. Place swab back into swab cylinder.
Urethra or cervical:
1. Collect specimen by inserting swab 1 to 3 cm and rotating 360 degrees.
2. Place swab back into swab cylinder.
Wound:
1. Collect specimen by swabbing back and forth over wound surface to maximize recovery of cells.
2. Place swab back into swab cylinder.

Specimen Type: Fluid
Sources: Pelvic, peritoneal, amniotic, prostatic secretions, semen, reproductive drainage or fluid, pleural/chest, chest tube, pericardial
Container/Tube: Sterile container
Specimen Volume: 1 to 2 mL

Specimen Type: Respiratory
Sources: sputum, tracheal secretions, bronchial washings, bronchoalveolar lavage, lung; or nasal washings (Note: Nasal washings may only be submitted for infants <3 months of age.)
Container/Tube: Sterile container
Specimen Volume: 1 to 2 mL

Specimen Type: Synovial fluid
Container/Tube:
Preferred: Lavender top (EDTA)
Acceptable: Pink top (EDTA), royal blue top (EDTA), sterile vial containing EDTA-derived aliquot, red clot tube (no anticoagulant), or sterile container
Specimen Volume: 0.5 mL
Collection Instructions: Send specimen in original tube.

Specimen Type: Urine (first void), kidney/bladder stone, or ureter
Container/Tube: Sterile container
Specimen Volume: 10 mL or entire specimen
Collection instructions: Urine first void: Specimen can be collected at any time during the day. The patient should not have urinated for at least 1 hour prior to specimen collection. The first voided portion is the initial 20 to 30 mL of the urine stream obtained **without** cleaning the external urethra.

Specimen Type: Tissue
Sources: Placenta, products of conception, urogenital, respiratory, bronchus, chest/mediastinal, bone, spine, or joint
Container/Tube: Sterile container
Specimen Volume: 5 mm(3)
Collection Instructions:
1. Collect fresh tissue specimen.
2. Submit fresh tissue only, do not add fluid to tissue
3. Refrigerate or freeze specimen.

Forms

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

Specimen Minimum Volume

Fluid: 1 mL
Urine, first void: 2 mL
Swab: 1 swab
Tissue: 5 mm(3)

Reject Due To

Cotton or calcium alginate-tipped swab Wooden shaft swab Transport swab containing gel or charcoal Formalin-fixed and/or paraffin-embedded tissues, Port-a-Cul tube Anaerobic fluid vials Dry swab (no pledget or sponge) Bone marrow Decalcified bone Slides Respiratory	Reject

fluid specimens placed in viral transport medium (VTM) or placed on a swab and then in VTM (M4-RT, M4, or M5) Body fluid specimens placed in viral transport medium (VTM) or placed on a swab and then in VTM (M4-RT, M4, or M5)	

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Varies	Refrigerated (preferred)	7 days	
	Frozen	7 days	

Clinical & Interpretive

Clinical Information

Metamycoplasma hominis, formerly *Mycoplasma hominis,* has been associated with a number of clinically significant infections, although it is also part of the normal genital microbiota.

M hominis may be found in the respiratory specimens and spinal fluid of neonates. Although the clinical significance of such findings is often unclear as spontaneous clinical recovery may occur without specific treatment, clinical manifestations of meningoencephalitis in premature infants have been reported.

M hominis may play a role in some cases of pelvic inflammatory disease, usually in combination with other organisms. *M hominis* may be isolated from amniotic fluid of women with preterm labor, premature rupture of membranes, spontaneous term labor, or chorioamnionitis; there is evidence that it may be involved in postpartum fever or fever following abortion, usually as a complication of endometritis.

M hominis has rarely been associated with septic arthritis (including prosthetic joint infection), pyelonephritis, intraabdominal infection, wound infection, endocarditis, central nervous system infection (including meningoencephalitis, brain abscess, central nervous system shunt infection, and subdural empyema), pneumonia, and infected pleural and pericardial effusions. Extragenital infection typically occurs in those with hypogammaglobulinemia or depressed cell-mediated immunity; in lung transplant recipients in particular, *M hominis* has been associated with pleuritis and mediastinitis. Recent evidence implicates donor transmission in some cases of *M hominis* infection in lung transplant recipients.

Polymerase chain reaction (PCR) detection of *M hominis* is sensitive, specific, and provides same-day results. Although this organism can occasionally be detected in routine plate cultures, this is neither a rapid nor a sensitive approach to detection. Specialized cultures are more time consuming than the described PCR assay. The described PCR assay has replaced conventional culture for *M hominis* at Mayo Clinic Laboratories due to its speed and equivalent performance to culture.

Reference Values

Not applicable

Interpretation

A positive polymerase chain reaction (PCR) result for the presence of a specific sequence found within the *Metamycoplasma hominis tuf* gene indicates the presence of *M hominis* DNA in the specimen.

A negative PCR result indicates the absence of detectable *M hominis* DNA in the specimen but does not rule out infection, as falsely negative results may occur due to inhibition of PCR, sequence variability underlying the primers and probes, or the presence of *M hominis* in quantities less than the limit of detection of the assay.

Cautions

Interfering substances may affect the accuracy of this assay; results should always be interpreted in conjunction with clinical and epidemiological findings.

Since *Metamycoplasma hominis* may be part of the normal flora, results should be interpreted accordingly.

This test does not detect other *Metamycoplasma* or *Ureaplasma* species (including *Metamycoplasma pneumoniae,* a common cause of community acquired pneumonia).

Clinical Reference

1. Sampath R, Patel R, Cunningham SA, et al. Cardiothoracic transplant recipient *Mycoplasma hominis*: An uncommon infection with probable donor transmission. EBioMedicine. 2017;19:84-90
2. Waites KB, Bebear C. *Mycoplasma* and *Ureaplasma*. In: Carroll KC, Pfaller MA, eds. Manual of Clinical Microbiology. 12th ed. ASM Press; 2019:1117-1136

Performance

Method Description

This polymerase chain reaction (PCR) method employs a target-specific detection system including primers, as well as fluorescent resonance energy transfer (FRET) hybridization probes designed for the *tuf* gene of *Metamycoplasma hominis*. The LightCycler instrument amplifies and monitors target nucleic acid sequences by fluorescence during PCR cycling. This is an automated PCR system that can rapidly detect amplified product development. The detection of amplified products is based on the FRET principle. For FRET product detection, a hybridization probe with a donor fluorophore, fluorescein, on the 3' end is excited by an external light source, which emits light that is absorbed by a second hybridization probe with an acceptor fluorophore, LC-Red 640, on the 5' end. The acceptor fluorophore then emits light of a different wavelength that is measured with a signal that is proportional to the amount of specific PCR product. The process is completed in a closed-tube system.(Cunningham SA, Mandrekar JN, Rosenblatt JE, Patel R. Rapid PCR detection of Mycoplasma hominis, Ureaplasma urealyticum, and Ureaplasma parvum. Int J Bacteriol. 2013;2013:168742. doi:10.1155/2013/168742)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
3 to 4 days

Specimen Retention Time
7 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

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

CPT Code Information
87798

LOINC® Information

Test Definition: MHRP

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Test ID	Test Order Name	Order LOINC® Value
MHRP	Mycoplasma hominis PCR	68546-1

Result ID	Test Result Name	Result LOINC® Value
SRC86	Specimen source	31208-2
32536	Mycoplasma hominis PCR	68546-1