Test Definition: MHBRP

Metamycoplasma hominis, Molecular Detection, PCR, Blood

Overview

Useful For

Rapid, sensitive, and specific identification of *Metamycoplasma hominis* from whole blood

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

Method Name

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

NY State Available

Yes

Specimen

Specimen Type

Whole Blood EDTA

Shipping Instructions

Ship specimen refrigerated.

Specimen Required

The high sensitivity of amplification by polymerase chain reaction requires the specimen to be processed in an environment in which contamination of the specimen by *Metamycoplasma hominis* DNA is unlikely.

Container/Tube:
Preferred: Lavender top (EDTA)
Acceptable: Royal blue top (EDTA), pink top (EDTA), or sterile vial containing EDTA-derived aliquot
Specimen Volume: 1 mL
Collection Instructions: Send whole blood specimen in original tube (preferred). **Do not aliquot.**

Specimen Minimum Volume

0.5 mL

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container

Whole Blood EDTA	Refrigerated (preferred)	7 days	
	Frozen	7 days	

Clinical & Interpretive

Clinical Information

Metamycoplasma hominis, previously Mycoplasma hominis, has been associated with a number of clinically significant infections, although it is also part of the normal urogenital 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. In premature infants, clinical manifestations of meningoencephalitis 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 it 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 microbiota, results should be interpreted accordingly.

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

Supportive Data

Validation included spiking studies for *Metamycoplasma hominis*. Spiking studies were carried out using 30 EDTA whole blood and plasma samples spiked with genomic DNA for *M hominis* (as well as 10 unspiked specimens). Sensitivity and specificity were 100%.

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 May;19:84-90. doi: 10.1016/j.ebiom.2017.04.026
2. Waites KB, Taylor-Robinson D: *Mycoplasma* and *Ureaplasma*. In: Jorgensen JH, ed. Manual of Clinical Microbiology. 11th ed. ASM Press; 2015:1088-1105

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 ID	Test Order Name	Order LOINC® Value
MHBRP	Mycoplasma hominis PCR, B	42621-3

Result ID	Test Result Name	Result LOINC® Value
44131	Mycoplasma hominis PCR, B	42621-3
MBSRC	Specimen Source	31208-2