MAYO CLINIC LABORATORIES

Test Definition: DMAID

Mycobacterium abscessus Complex Subspecies Identification, Next-Generation Sequencing

Overview

Useful For

Determining the subspecies of a *Mycobacterium abscessus* complex culture isolate

Testing Algorithm

When this test is ordered, subspecies identification will always be performed at an additional charge if the organism is not already identified to the subspecies level.

Special Instructions

- Infectious Specimen Shipping Guidelines

Method Name

Next-Generation Sequencing (NGS)

NY State Available

Yes

Specimen

Specimen Type

Varies

Ordering Guidance

This test is used to identify the subspecies of *Mycobacterium abscessus* from a known *M abscessus* isolate.

For the identification of *M abscessus* (not the subspecies) from culture isolate growth, order CTBID / Culture Referred for Identification, *Mycobacterium* and *Nocardia*, Varies.

Shipping Instructions

1. For shipping information see Infectious Specimen Shipping Guidelines.
2. Place specimen in a large infectious container and label as an etiologic agent/infectious substance.

Necessary Information

Specimen source and suspected organism identification are required.

Specimen Required

Supplies: Infectious Container, Large (T146)

Specimen Type: *Mycobacterium abscessus* isolate growing in pure culture

Container/Tube:

Preferred: Solid slant medium (eg. Middlebrook 7H10, 7H11 or Lowenstein Jensen agar)
Acceptable: Broth medium (eg. Mycobacteria Growth Indicator Tube, 7H9 broth, BACT/ALERT MP or VersaTREK bottle).
Note: Broth specimens will require subculture which will delay results**.**
Specimen Volume:
Solid slant medium: Isolate with visible growth
Broth medium: Greater than or equal to 3 mL of broth culture
Collection Instructions:
1. Organism must be in pure culture, actively growing. **Do not submit mixed cultures.**
2. Place specimen in a large infectious container and label as an etiologic agent/infectious substance.

Specimen Minimum Volume
See Specimen Required

Reject Due To

Agar plate	Reject
Mixed culture	Reject

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information
This assay provides a subspecies-level identification of microbiologic culture isolates previously identified to be *Mycobacterium abscessus*. Subspecies level identification can be important for patient care and for epidemiologic investigations since the subspecies can differ in macrolide susceptibility.

Reference Values
Not applicable

Interpretation
This assay can differentiate the subspecies of *Mycobacterium abscessus*, which are, *M abscessus* subspecies *abscessus*, *M abscessus* subspecies *bolletii*, and *M abscessus* subspecies *massiliense.*

Cautions
Only pure culture isolates of *Mycobacterium abscessus* should be submitted. Mixed cultures will result in a delay because the *M abscessus* must be isolated prior to performing the next-generation sequencing assay.

This assay has not been verified for the direct detection and direct subspecies identification of *M abscessus* from clinical

specimens. It is intended for use on microbiologic culture isolates already identified as *M abscessus*.

Clinical Reference

1 Daley CL, Iaccarino JM, Lange C, et al. Treatment of Nontuberculous Mycobacterial Pulmonary Disease: An Official ATS/ERS/ESCMID/IDSA Clinical Practice Guideline. Clin Infect Dis. 2020;71(4):905-913. doi:10.1093/cid/ciaa1125

2. Kumar K, Daley CL, Griffith DE, Loebinger MR. Management of *Mycobacterium avium* complex and *Mycobacterium abscessus* pulmonary disease: therapeutic advances and emerging treatments. Eur Respir Rev. 2022;31(163):210212. Published 2022 Feb 9. doi:10.1183/16000617.0212-2021

Performance

Method Description

The subspecies of *Mycobacterium abscessus* are differentiated using the Genoscreen Deeplex Myc-TB assay. This test is a targeted next generation sequencing test for identification of *Mycobacterium* species using deep sequencing of a single 24-plexed amplicon mix for identification. The gene target used in this assay for species identification is primarily *hsp65* but additional targets such as *rrl, rrs, rpoB are used* to help with nontuberculous mycobacteria identification to permit discrimination of closely related species and subspecies. This test was validated to demonstrate its ability to differentiate the 3 subspecies within the *M abscessus* from microbiologic culture isolates using the Nextera XT DNA Library Preparation kit, the MiSeq Reagent Kit V2. 300 cycle kit and the Illumina MiSeq sequencing platform.(Buckwalter SP, Olson SL, Fida M, et al. *Mycobacterium abscessus* subspecies identification using the Deeplex Myc-TB targeted NGS assay. J Clin Microbiol. 2023;61(10):e0048923. doi:10.1128/jcm.00489-23)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

7 to 14 days

Specimen Retention Time

1 year

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

87153

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
DMAID	M abscessus subspecies ID, NGS	112278-7

Result ID	Test Result Name	Result LOINC® Value
DMAID	M abscessus subspecies ID, NGS	112278-7