

# Specimen Submission Guidelines for Pathologic Evaluation of Possible Mycobacterial Infections

Tissue samples are typically submitted for mycobacterial testing when there is strong clinical suspicion of tuberculosis, a bacterial infection caused by species within the *Mycobacterium tuberculosis* complex. Nontuberculous mycobacteria, such as *Mycobacterium avium-intracellulare* complex (MAC) and *Mycobacterium marinum*, can also cause clinically significant pulmonary and cutaneous infections, which may be particularly severe in the immunocompromised host.

Mycobacterial infections often cause granulomatous inflammation in tissues, which can be observed in routine H&E stained slides. The findings typically prompt further routine testing in the pathology laboratory for acid-fast bacilli (AFB) using special stains, in addition to further clinical laboratory testing.

At IDPB, testing by immunohistochemical and molecular assays will be performed as indicated according to clinical and epidemiologic information provided by the submitter, and the histopathologic findings in the submitted tissue specimens.

CDC's Tuberculosis Reference Laboratory (<http://www.cdc.gov/tb/topic/laboratory/>) can perform Molecular Detection of Drug Resistance (MDDR) testing. DNA will only be transferred for samples in which *M. tuberculosis* complex is detected, and if requested by the submitter.

## Required Information for Specimen Submission\*

1. Pathologists and clinicians should contact your state/local health department to coordinate sample submission and complete the required [CDC Form 50.34](#).
  - a. Select test order code CDC-10365 "Pathologic Evaluation of Tissues for Possible Infectious Etiologies"
  - b. Select "Mycobacterium tuberculosis complex" or "Mycobacterium, non-TB (MOTT)" as the suspected agent
  - c. For MDDR testing, enter "Molecular Detection of Drug Resistance (MDDR)" in Comments field on Page 2
2. Copies of pertinent recent clinical notes or a cover letter detailing the patient's initial presentation, medical interventions, and any treatment provided as well as relevant demographic, clinical, and epidemiologic information. Key information includes factors that might increase the patient's risk for mycobacterial infection, such as: underlying medical conditions or immunosuppressive therapy, history of travel or residence outside of the US, other pertinent exposures (e.g., exposure to an active TB case, exposure to water, animals, etc), and any prior mycobacterial diagnoses and treatments, including prior history of latent tuberculosis infection (LTBI).
3. Results of special stain testing for AFB (ex. Ziehl-Neelsen), which must be performed prior to submission.
4. Results of all pertinent clinical laboratory testing such as sputum AFB smear and culture, interferon gamma release assays (IGRA), and PCR assays.

\*Please note that if any of the above information is not provided, there will be no further processing of the case. Because of the high volume of mycobacterial cases tested at IDPB, we suggest ensuring that your submission is complete, so we can provide results in a timely manner.

## Collection of Tissue Specimens

Representative formalin-fixed tissues should be included from all organs showing significant gross or microscopic pathology.

## Submission of Specimens

### Paraffin-embedded tissue blocks:

This is the preferred specimen for suspected cases of mycobacterial infection. The distribution of bacteria in tissues can be minimal and patchy; therefore, we suggest the provision of adequate tissue blocks that demonstrate pathology (i.e., granulomas). For scant specimens, submission of the original H&E and acid-fast stained slides in addition to the tissue blocks is encouraged.

### Formalin-fixed wet tissue:

Representative tissues that have NOT undergone prolonged formalin fixation may be submitted if paraffin blocks are unavailable. Prolonged fixation (>2 weeks) reduces sensitivity of immunohistochemical and molecular diagnostic assays. The volume of formalin used to fix tissues should be 10x the volume of tissue. Place tissue collected according to the dimensions provided above in 10% buffered formalin for three days (72 hours) for biopsies, and a week for thinly-sliced autopsy tissues. After fixation, if not paraffin-embedded, tissues **SHOULD** be transferred to 70% ethanol for long term storage and for shipping.

**Tissue scrolls and unstained slides: are NOT accepted** for PCR per IDPB's testing protocols and will not be tested.

*Please refer to our General Guidelines for Submitting Pathology Specimens (next page).*

# Infectious Diseases Pathology Branch (IDPB)

## Specimen Submission Requirements

### Requirements for submitting diagnostic specimens/cases to IDPB:

**A. U.S. health care professionals – first consult with your state health department regarding any sample submissions.**

**B. Send an email to [Pathology@cdc.gov](mailto:Pathology@cdc.gov) with:**

- 1) A brief clinical history
- 2) A copy of the surgical pathology report or autopsy report (prelim reports are acceptable)
- 3) A listing of available formalin-fixed specimen types (wet tissue, paraffin blocks, and/or slides)
- 4) Relevant clinical, gross pathology, or microscopic pathology digital images, as available

**C. After you receive approval by email to submit the case to IDPB:**

- 1) Electronically fill, save, and print both pages of the [Specimen Submission Form CDC 50.34](#).
  - a) The form must be filled electronically to generate 3 barcodes required for accessioning
  - b) E-mail addresses of the Original and Intermediate submitters (if any) are mandatory fields
- 2) Select Test Order Code CDC-10365 (Pathologic Evaluation of Tissues for Possible Infectious Etiologies)
- 3) Click on links below for specific syndrome based tissue collection instructions:

[Pathologic Evaluation of CNS Infections](#)

[Pathologic Evaluation of Influenza Virus Infections](#)

[Pathologic Evaluation of Myocarditis](#)

[Pathologic Evaluation of Suspect Pneumonia Infections](#)

[Pathologic Evaluation of Rash- and Eschar-Associated Illness](#)

[Pathologic Evaluation of Hepatitis](#)

[Pathologic Evaluation of Sudden Unexplained Infant Death with Pathologic or Clinical Suspicion of Infection](#)

[Pathologic Evaluation of Unexplained Illness Due to Possible Infectious Etiology](#)

[Pathologic Evaluation of Suspect Mycobacterium Cases](#)

**D. Mailing/Contact Info:**

- 1) Ship to Dr. Sherif Zaki, CDC, IDPB, 1600 Clifton Rd NE, MS: H18-SB, Atlanta, GA 30329-4027
- 2) Mail in suitable packaging for delivery Monday-Friday, excluding Federal holidays
- 3) Send tracking number to [Pathology@cdc.gov](mailto:Pathology@cdc.gov)
- 4) Tel: 404-639-3132, Fax: 404-639-3043, Email: [Pathology@cdc.gov](mailto:Pathology@cdc.gov)