



## American Committee on Clinical Tropical Medicine and Travelers' Health (ACCTMTH)

Official Subgroup of the American Society of Tropical Medicine & Hygiene

Please note that this information is provided as an aid to clinical diagnosis of parasitic diseases. It is not an exhaustive list or a diagnostic guideline. For assistance with diagnosis or advice on which diagnostic test to obtain, please contact the CDC at the contact information provided below.

Tests NOT currently available at CDC: <https://cdc.gov/infectious-diseases-labs/php/test-directory/index.html>

Outside of the CDC's clinical laboratory, almost all testing for parasitic diseases in the United States is done by these five laboratories (with some additional labs as mentioned in listing below) on a fee-for-service basis:

1. ARUP: <https://www.aruplab.com/testing>
2. Kephera Diagnostics: <https://kephera.com>
3. Mayo Clinic Laboratories: <https://www.mayocliniclabs.com/test-catalog>
4. Mount Sinai Hospital Clinical Laboratories: ([AskTheLab@mountsinai.org](mailto:AskTheLab@mountsinai.org)) Mount Sinai Lab Client Services: 212 241 5227.
5. Quest Diagnostics: <https://testdirectory.questdiagnostics.com/test/home>

Canada's National Reference Centre for Parasitology (NRCP): <http://www.nrcc.ca>; if from outside of Canada, please contact prior to sending\*

\*Note that testing sent to labs outside the US may not be done under CLIA or CAP-ACP accreditation. Check with your health system's clinical laboratory to ensure they can send specimens to foreign laboratories.

When the CDC's parasitic lab testing is unavailable, their experts may remain available to provide advice on diagnosis or management of suspected cases of parasitic diseases; they can be contacted via the CDC's Parasitic Diseases:

### **Parasitic Diseases Hotline/Clinical Consult Service for Healthcare Providers (non-malaria parasitic diseases)**

Hours: Monday – Friday, 8 am – 4 pm EST

Telephone: 404-718-4745

Email: [parasites@cdc.gov](mailto:parasites@cdc.gov), [didx@cdc.gov](mailto:didx@cdc.gov) (specifically for diagnostic assistance)

Afterhours/Emergency: 770-488-7100

### **Malaria Hotline/Clinical Consult Service for Healthcare Providers**

Hours: Monday – Friday, 9 am – 5 pm EST

Telephone: 770-488-7788 or 855-856-4713 (toll free)

Email: [malaria@cdc.gov](mailto:malaria@cdc.gov)

Afterhours/Emergency: 770-488-7100

## SEROLOGY

**Amebiasis (*Entamoeba histolytica*) serology** (Comment: Useful for extraintestinal, invasive disease only. Sensitivity is low for non-invasive disease, including amebic dysentery)

- U.S. Commercial Lab: Yes, ARUP, Mayo Clinic Laboratories, and Quest Diagnostics
- U.S. Public Health/NIH Lab: No
- International Lab: Yes (NRCP, <http://www.nrmp.ca>)

**Babesiosis (*microti*) serology** (Comment: Per 2020 IDSA Guidelines, a single positive antibody test is not sufficient to establish a diagnosis of babesiosis because *Babesia* antibodies can persist in blood for a year or more following apparent clearance of infection, with or without treatment.)

- U.S. Commercial Lab: Yes, ARUP, LabCorp, Mayo Clinic Laboratories, and Quest Diagnostics
- U.S. Public Health/NIH Lab: Yes, at some state public health labs
- International Lab: Yes (NRCP, <http://www.nrmp.ca>)

### **Baylisascariasis serology**

- U.S. Commercial Lab: No
- U.S. Public Health/NIH Lab: No
- International Lab: Yes (NRCP, <http://www.nrmp.ca>)

**Chagas disease (*Trypanosoma cruzi*) serology** (Comment: Per 2018 PAHO guidelines, diagnosis of chronic Chagas disease requires that two distinct *T. cruzi* serologic tests result positive)

- U.S. Commercial Lab: Yes, all now offer multi-step testing with different serological assays, as follows:
  - ARUP: Can order Hemagen EIA alone or Hemagen+Wiener EIAs
  - Kephra Diagnostics: Can order multi-test algorithm (Wiener+TESA, with Multi-Cruzi Multiplex Immunoassay as tie-breaker), or individual tests as desired
  - Mayo Clinic: Can order as multi-test only (Wiener + InBios RDT)
  - Mount Sinai Hospital Clinical Laboratories (Wiener Chagatest rec v.3, ORTHO *T. cruzi* ELISA, InBios)
  - Quest Diagnostics: Can order Wiener EIA; indeterminate or positive results will reflex to InBios RDT for confirmatory testing.
- U.S. Public Health/NIH Lab: Yes, 1) TX DSHS offers two *T. cruzi* serologic assays in tandem, 2) CDC offers tiebreaker/confirmatory testing with TESA only
- International Lab: Yes (NRCP, <http://www.nrmp.ca>)

### **Clonorchiasis/Opisthorchis serology**

- U.S. Commercial Lab: Yes, Kephra Diagnostics
- U.S. Public Health/NIH Lab: No
- International Lab: Yes (Thailand's Mahidol University [<https://www.tm.mahidol.ac.th/helminth/services/>])

**Cysticercosis serology** (The standard of diagnosis for neurocysticercosis is head [CT/MRI] imaging, confirmatory serology is ancillary but recommended. ELISA is non-specific; standard of confirmatory serology is immunoblot)

- U.S. Commercial Lab: Yes
  - Quest offers an immunoblot assay, ELISA assay, and ELISA with reflex to immunoblot on serum and CSF
  - Kephra offers Triplex ELISA
  - ARUP/LabCorp offers ELISA on CSF and serum
  - Mayo Clinic Laboratories offers ELISA on serum and CSF
- U.S. Public Health/NIH Lab: No
- International Lab: Yes (NRCP, <http://www.nrmp.ca>)

**Echinococcosis serology** (Comment confirmation of positive Echinococcus ELISA is recommended via an immunoblot)

- U.S. Commercial Lab: Yes
  - ARUP – ELISA on CSF and Serum

- Mayo Clinic Laboratories – ELISA on Serum Only
- Quest Diagnostics- ELISA with reflex to immunoblot on Serum only
- LabCorp – ELISA on Serum Only
- U.S. Public Health/NIH Lab: No
- International Lab: Yes (NRCP and Switzerland [University of Bern performs serologic and molecular testing for *E. granulosus* and *E. multilocularis*. See IFIK Request Form for Diagnostic Parasitological Analyses [https://www.ifik.unibe.ch/unibe/portal/fak\_medizin/ber\_dlb/inst\_infekt/content/e39965/e818104/e818106/e818917/files818920/AF\_Parasitologie\_IMS-ID\_4974\_v3\_en\_ger.pdf]

#### **Fascioliasis serology**

- U.S. Commercial Lab: Yes, Kephra Diagnostics
- U.S. Public Health/NIH lab available: No
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

#### **Filariasis serology**

- U.S. Commercial Lab: Yes, Quest, Mayo, ARUP, LabCorp
- U.S. Public Health/NIH Lab: Yes. Contact CDC for instructions on sending specimens to NIH. NIH Laboratory of Parasitic Diseases (Fax: 301-480-5338) is CLIA approved for filaria serology.
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

#### **Gnathostomiasis serology**

- U.S. Commercial Lab: No
- U.S. Public Health/NIH Lab: No
- International Lab: Yes (NRCP [<http://www.nrcp.ca>], Swiss TPH [[Diagnostic Centre at Swiss TPH | Expertise in Parasitic Diseases](#)], Thailand's Mahidol University [<https://www.tm.mahidol.ac.th/helminth/services/>])

**Leishmaniasis serology** (Comment: for visceral leishmaniasis; serology is rarely useful for cutaneous or mucocutaneous disease. Cross-reactivity with *T. cruzi* infection has been observed)

- U.S. Commercial Lab: Yes, ARUP, LabCorp, Mayo Clinic Laboratories, and Quest Diagnostics
- U.S. Public Health/NIH Lab: No
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

#### **Paragonimiasis serology**

- U.S. Commercial lab: No
- U.S. Public Health/NIH Lab: No
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

**Schistosomiasis serology** (Sensitivity may be lower for non-*S. mansoni* species. Immunoblot for species identification is not available.)

- U.S. Commercial lab: Yes, ARUP, LabCorp, Mayo Clinic Laboratories, Quest
- U.S. Public Health/NIH Lab: Yes, at some state public health labs
- International: Yes (NRCP, <http://www.nrcp.ca>)

#### **Strongyloidiasis serology**

- U.S. Commercial lab: Yes, ARUP, LabCorp, Mayo Clinic Laboratories, and Quest Diagnostics
- U.S. Public Health/NIH Lab: Yes, at some state public health labs
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

#### **Toxocariasis serology**

- U.S. Commercial lab: Yes, ARUP, LabCorp, Mayo Clinic Laboratories, and Quest Diagnostics
- U.S. Public Health/NIH Lab: No

- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

### ***Toxoplasma serology***

- Commercial Lab: Yes (IgG and IgM on standard ELISA are prone to false-positive results and thus may need to be confirmed in certain high-risk groups by Sabin-Feldman Dye and Double-Sandwich ELISA assays, respectively.)
  - ARUP – IgG and IgM ELISA on Serum Only
  - Mayo – IgG and IgM ELISA on CSF and Serum
  - LabCorp – IgG and IgM ELISA on CSF and Serum, IgG Avidity on Serum as standalone or reflex from positive ELISA
  - Quest Diagnostics - IgG and IgM ELISA on CSF and Serum
  - Remington Laboratory – Double-Sandwich ELISA for IgM, Sabin-Feldman Dye Test for IgG, IgG Avidity, AC/HS Test, IgA, and IgE
- U.S. Public Health/NIH Lab: No
- International Lab: No

### **Trichinellosis serology (Screen for exposure only)**

- U.S. Commercial Lab: Yes, ARUP, and Quest Diagnostics
- U.S. Public Health/NIH Lab: NIH offers a research-only assay for CSF
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

## **MOLECULAR/Culture/Other**

### ***Acanthamoeba species* molecular detection**

- U.S. Commercial Lab: Mount Sinai Hospital Clinical Laboratories.
- U.S. Public Health/NIH lab available:
- International Lab:

### ***Angiostrongylus cantonensis* molecular detection**

- U.S. Commercial Lab metagenomic NGS: Karius (plasma), DelveBio (CSF), Mayo Clinic Laboratories – (CSF)
- U.S. Public Health/NIH lab available: Hawaii SPHL (via CDC); NIH offers a research-use only assay for CSF
- International Lab: No

### ***Babesia* molecular detection**

- U.S. Commercial Lab: Yes, ARUP, Mayo Clinic Laboratories, Mount Sinai Hospital Clinical Laboratories, LabCorp, and Quest Diagnostics
- U.S. Public Health/NIH Lab: Yes, at some state public health labs
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

### ***Entamoeba histolytica* molecular detection**

- U.S. Commercial Lab: Yes, ARUP, LabCorp, and Mayo Clinic Laboratories (as part of a multiplex GI pathogens panel)
- U.S. Public Health/NIH Lab available: No
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

### **Filariasis**

- U.S. Commercial Lab: Yes, ARUP and Mayo Clinic Laboratories offer Knott's concentration
- U.S. Public Health/NIH Lab: Yes. Contact CDC for instructions on sending specimens to NIH. NIH Laboratory of Parasitic Diseases (Fax: 301-480-5338) is CLIA approved for microfilaria molecular quantification
- International Lab: No

### **Free-living Ameba molecular detection**

- U.S. Commercial Lab: Yes
  - Culture: ARUP, Quest Diagnostics
  - Molecular: Mayo Clinic Laboratories (*Acanthamoeba*, *Balamuthia*, *Naegleria* PCR, also CSF mNGS), University of Washington (*Acanthamoeba* and *Balamuthia*, only)
- U.S. Public Health/NIH Lab available: No
- International Lab: No

#### ***Leishmania* species identification (for cutaneous leishmaniasis)**

- U.S. Commercial Lab: Yes, Mount Sinai Hospital Clinical Laboratories, University of Washington (Comment: be sure to request species-specific PCR; <https://testguide.labmed.uw.edu/view/LSHDNA?>)
- U.S. Public Health/NIH Lab: No
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

#### **Malaria molecular identification**

- U.S. Commercial Lab: Yes, ARUP, LabCorp, Mayo Clinic Laboratories, Mount Sinai Hospital Clinical Laboratories, and Quest
- U.S. Public Health/NIH Lab: Yes, at some state public health labs
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

#### **Microsporidia molecular identification**

- U.S. Commercial Lab: Yes, ARUP and Mayo Clinic Laboratories
- U.S. Public Health/NIH Lab: Yes, at some state public health labs
- International Lab: No

#### ***Strongyloides* – Agar Plate Culture**

- U.S. Commercial Lab: Yes, ARUP (University of Utah and surrounding region only), Mayo Clinic Laboratories (Mayo Clinic Minnesota and Wisconsin region only)
- U.S. Public Health/NIH Lab: No
- International Lab: No

#### ***Taenia solium* Ag assay/qPCR or mNGS of plasma and CSF**

- U.S. Commercial Lab: Mayo Clinic Laboratories (CSF mNGS), DelveBio (CSF mNGS)
- U.S. Public Health/NIH Lab: Yes. Contact CDC for instructions on sending specimens to NIH. NIH Laboratory of Parasitic Diseases (Fax: 301-480-5338) is CLIA approved for *T. solium* molecular testing.
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)

#### ***Toxoplasma gondii* molecular detection**

- Commercial Lab: Yes, Mayo Clinic Laboratories, ARUP, LabCorp, Quest, Remington Laboratory (molecular and culture), and University of Washington
- U.S. Public Health/NIH Lab: No
- International Lab: No

#### ***Trichomonas* susceptibility testing**

- U.S. Commercial Lab: No
- U.S. Public Health/NIH lab available: No but University of Alabama Birmingham (UAB) is CLIA certified and can accept samples for testing.

#### ***Trypanosoma cruzi* (Chagas disease) molecular detection**

- U.S. Commercial Lab: Eurofins, Mount Sinai Hospital Clinical Laboratories
- U.S. Public Health/NIH Lab: Yes (NY SPHL; Comments: NY SPHL requires pre-approval from CDC).
- International Lab: Yes (NRCP, <http://www.nrcp.ca>)