Test Definition: CYCL

Cyclospora Stain, Feces

Overview

Useful For

Identifying *Cyclospora cayetanensis* as a cause of infectious gastroenteritis

Testing Algorithm

For other diagnostic tests that may be of value in evaluating patients with diarrhea; the following are available:
-Laboratory Testing for Infectious Causes of Diarrhea
-Parasitic Investigation of Stool Specimens Algorithm

Special Instructions

- Parasitic Investigation of Stool Specimens Algorithm
- Laboratory Testing for Infectious Causes of Diarrhea

Method Name

Safranin Stain

NY State Available

Yes

Specimen

Specimen Type

Fecal

Ordering Guidance

This test is intended specifically for the detection of *Cyclospora*.
If *Cryptosporidium* is suspected, the specific enzyme-linked immunosorbent assay for this organism is recommended; order CRYPS / *Cryptosporidium* Antigen, Feces.
GIP / Gastrointestinal Pathogen Panel, PCR, Feces should be considered for the detection of *Cyclospora*, *Cryptosporidium*, and other common infectious causes of diarrhea.

Specimen Required

Patient Preparation: Patient should avoid use of antidiarrheal medication (eg, loperamide [Imodium-AD] or Pepto-Bismol).
The presence of barium will interfere with this test.

Submit only 1 of the following specimens:

Preferred:
Specimen Type: Preserved stool

Supplies:
-ECOFIX Stool Transport Vial (Kit) (T219)
-Formalin-Meridian 10% Buffered Neutral (T466)
Container/Tube:
Preferred: ECOFIX Stool Transport Vial (Kit)
Acceptable: 10% Buffered Formalin Stool Transport (Kit), Sodium Acetate Formalin (SAF)
Specimen Volume: 10 g
Specimen Stability Information: Ambient 21 days (preferred)/Refrigerated 21 days

Acceptable
Specimen Type: Unpreserved stool
Supplies: Stool container, Small (Random), 4 oz (T288)
Container/Tube: Stool container
Specimen Volume: 5 g
Specimen Stability Information: Refrigerated 3 days (preferred)

Forms
If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:
-Microbiology Test Request (T244)
-Gastroenterology and Hepatology Test Request (T728)

Specimen Minimum Volume
Preserved stool: 1 g
Unpreserved stool: 2 g

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

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Fecal	Varies		

Clinical & Interpretive

Clinical Information
Cyclospora cayetanensis is an apicomplexan protozoan parasite that causes watery diarrhea, anorexia, malaise, and weight loss.(1) The extent of symptoms depends on the age and health of the host and the infectious dose of oocysts. The infection is usually self-limited, but symptoms can be severe and prolonged, particularly in immunocompromised patients. Cyclosporal diarrheal disease is endemic in many parts of the world, including parts of Asia, India, Southeast Asia, and Latin America. Although most cases of cyclosporiasis have been seen in travelers to developing countries, outbreaks in the United States are now seen each year associated with contaminated fruits and vegetables from Latin America. Transmission is via ingestion of fecally contaminated food or water. If untreated, symptoms may last for several weeks and may follow a relapsing course. The infection usually responds to treatment with a sulfamethoxazole-trimethoprim drug combination.

C cayetanensis oocysts are traditionally detected by modified acid-fast staining in which the oocysts stain bright pink red.(1,2) However, the modified safranin stain has been shown to provide increased sensitivity over the modified acid-fast method and produces a more rapid result. It is the method used in the Mayo Clinic Parasitology Laboratory to detect *C cayetanensis* oocysts in fecal sediment.

For more information about diagnostic tests that may be of value in evaluating patients with diarrhea see the following:
-Laboratory Testing for Infectious Causes of Diarrhea
-Parasitic Investigation of Stool Specimens Algorithm

Reference Values

Negative
If positive, reported as *Cyclospora cayetanensis* detected.

Interpretation

A report of "*Cyclospora cayetanensis* detected" indicates the presence of this parasite in the patient's feces.

Cautions

The full spectrum of disease and the extent of carriage without disease have not been determined. In addition, the exact sensitivity and specificity of the stain have also not been determined.

Cryptosporidium oocysts do not reliably stain with the modified safranin stain. If *Cryptosporidium* is suspected, the specific enzyme-linked immunosorbent assay (CRYPS / *Cryptosporidium* Antigen, Feces) for this organism is recommended. Alternatively, the GIP / Gastrointestinal Pathogen Panel, PCR, Feces may be performed to detect this organism as well as other common infectious causes of diarrhea.

Clinical Reference

1.Centers for Disease Control and Prevention (CDC) Global Health, Division of Parasitic Diseases and Malaria. Parasites–Cyclosporiasis (Cyclospora infection). CDC; Updated March 12, 2020. Accessed October 31, 2022. Available at www.cdc.gov/parasites/cyclosporiasis/index.html
2. Garcia LS, Arrowood M, Kokoskin E, et al: Practical guidance for clinical microbiology laboratories: Laboratory diagnosis of parasites from the gastrointestinal tract. Clin Microbiol Rev. 2017 Nov 15;31(1):e00025-17

Performance

Method Description

A thin smear of the fecal concentrate is placed on a slide and allowed to air dry. The slide is then placed in acidic alcohol for 5 minutes, followed by washing with cold tap water. The slide is then placed in a Coplin jar containing safranin solution in acidified water and heated in a microwave at full power for 1 minute. Excess stain is washed off with tap water, and the slide is placed in a Coplin jar containing the counterstain (aqueous solution of either 1% methylene blue or 1% malachite green) for 1 minute. After a final rinse in tap water, the slide is dried, and a coverslip is applied. The slide is examined microscopically using high-power with oil immersion. The oocysts of *Cyclospora* will be clear to pink and have a somewhat refractile quality.(Visvesvara GS, Moura H, Kovacs-Nace E, Wallace S, Eberhard ML: Uniform staining of Cyclospora oocysts in fecal smears by a modified safranin technique with microwave heating. J Clin Microbiol

1997;35:730-733; Mathison BA, Pritt BS: Cyclosporiasis-Updates on clinical presentation, pathology, clinical diagnosis, and treatment. Microorganisms. 2021 Sep 2;9(9):1863. doi: 10.3390/microorganisms9091863)

PDF Report
No

Day(s) Performed
Monday through Saturday

Report Available
2 to 4 days

Specimen Retention Time
3 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 has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information
87015
87207

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
CYCL	Cyclospora Stain	50313-6

Result ID	Test Result Name	Result LOINC® Value
CYCL	Cyclospora Stain	In Process