MAYO CLINIC LABORATORIES

Test Definition: ALBFL

Albumin, Body Fluid

Overview

Useful For

Aiding in identifying the cause of ascites

Aiding in differentiating exudative and transudative pleural effusions

Method Name

Colorimetric

NY State Available

Yes

Specimen

Specimen Type

Body Fluid

Ordering Guidance

For cerebrospinal fluid (CSF) specimens, order ALBSF / Albumin, Spinal Fluid. Testing will be changed to ALBSF if this test is ordered on that specimen type.

Necessary Information

1. Date and time of collection are required.

2. Specimen source is required.

Specimen Required

Specimen Type: Body fluid

Preferred Source:

-Peritoneal fluid (peritoneal, abdominal, ascites, paracentesis)

-Pleural fluid (pleural, chest, thoracentesis)

-Drain fluid (drainage, JP drain)

Acceptable Source: Write in source name with source location (if appropriate)

Collection Container/Tube: Sterile container

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions:

1. Centrifuge to remove any cellular material and transfer into a plastic vial.
2. Indicate the specimen source and source location on label.

Specimen Minimum Volume

0.5 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross Icterus	Reject
Anticoagulant or additive Breast milk Nasal secretions Gastric secretions Bronchoalveolar lavage (BAL) or bronchial washings Colostomy/ostomy Feces Urine Saliva Sputum Vitreous fluid	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Body Fluid	Refrigerated (preferred)	7 days	
	Ambient	24 hours	
	Frozen	30 days	

Clinical & Interpretive

Clinical Information

Peritoneal fluid:

Ascites is the pathologic accumulation of excess fluid in the peritoneal cavity caused by changes in vascular permeability, hydrostatic pressure, and oncotic pressure. The most common causes of ascites in individuals are cirrhosis (80%), malignancy (10%), cardiac failure (5%), and infection.

Total protein results of 3.0 g/dL or greater, historically used to classify ascites fluid as transudate or exudate, has a reported accuracy of only 55% in identifying exudates and has been largely replaced with measurement of the serum-ascites albumin gradient (SAAG), calculated as serum albumin concentration minus ascites albumin

concentration.

SAAG has been shown to correlate directly with portal pressure and SAAG results of 1.1 g/dL or greater are 97% accurate at identifying portal hypertension. Conditions associated with high SAAG include cirrhosis, acute liver failure, fatty liver disease, alcoholic hepatitis, portal vein thrombosis, hepatic malignancy, and veno-occlusive disease. Cardiac ascitic fluid caused by congestive heart failure has both a high SAAG result (> or =1.1 g/dL) and total protein concentration greater than 2.5 g/dL. Conditions associated with low SAAG measurement (<1.1 g/dL) include peritoneal malignancy, tuberculosis, pancreatitis, connective tissue disease, and nephrotic syndrome.

Pleural fluid:
Pleural fluid is normally present within the pleural cavity surrounding the lungs, serving as a lubricant between the lungs and inner chest wall. Pleural effusion develops when the pleural cavity experiences an overproduction of fluid due to increased capillary hydrostatic and osmotic pressure that exceeds the ability of the lymphatic or venous system to return the fluid to circulation. Laboratory-based criteria are often used to classify pleural effusions as either exudative or transudative. Exudative effusions form due to infection or inflammation of the capillary membranes allowing excess fluid into the pleural cavity. Patients with these conditions benefit from further investigation and treatment of the local cause of inflammation. Transudative effusions form due to systemic conditions such as volume overload, end-stage renal disease, and heart failure that can lead to excess fluid accumulation in the pleural cavity. Patients with transudative effusions benefit from treatment of the underlying condition.(1) Dr. Richard Light derived criteria in the 1970s for patients with pleural effusions that are still used today.(2) Dr. Light's criteria were designed to be sensitive for detecting exudates at the expense of specificity.(3) Heart failure and recent diuretic use contribute to most misclassifications by Dr. Light's criteria (transudates falsely categorized as exudates). Serum-to-fluid protein or albumin gradient (serum protein or albumin minus fluid protein or albumin) may be calculated in these cases and when more than 3.1 g/dL (protein) or 1.2 g/dL (albumin) suggests the patient has a transudative effusion.

Reference Values

An interpretive report will be provided

Interpretation

Peritoneal fluid albumin is used to calculate the serum-ascites albumin gradient. Values of 1.1 g/dL or higher suggest portal hypertension.

Pleural fluid albumin may be used to calculate a serum-effusion albumin gradient. Values above 1.2 g/dL are most consistent with a transudative process.

For all other fluids, the albumin concentration and gradient have only been evaluated in peritoneal and pleural fluids. All other fluid albumin concentrations should be interpreted in conjunction with serum albumin concentration and other clinical findings.

Cautions

Serum and ascitic fluid for determination of serum-albumin ascites gradient should be collected on the same day.

In very rare cases of gammopathy, in particular type IgM (Waldenstrom macroglobulinemia), (may cause unreliable results.

Colorimetric methods used for the determination of albumin may lead to falsely elevated test results in patients

suffering from renal failure or insufficiency due to interference with other proteins. Immunoturbidimetric methods are less affected.

Clinical Reference

1. Runyon BA, Montano AA, Akriviadis EA, Antillon MR, Irving MA, McHutchison JG. The serum-ascites albumin gradient is superior to the exudate-transudate concept in the differential diagnosis of ascites. Ann Intern Med. 1992;117(3):215-220. doi:10.7326/0003-4819-117-3-215
2. Clinical and Laboratory Standards Institute: Analysis of Body Fluids in Clinical Chemistry; Approved Guideline. CLSI document C49-A (ISBN 1-56238-638-7). Clinical and Laboratory Standards Institute, 2007
3. Block DR, Algeciras-Schimnich A. Body fluid analysis: Clinical utility and applicability of published studies to guide interpretation of today's laboratory testing in serous fluids. Crit Rev Clin Lab Sci. 2013; 50(4-5):107-124
4. Heffner JE, Brown LK, Barbieri CA. Diagnostic value of tests that discriminate between exudative and transudative pleural effusions. Chest. 1997;111(4):970-980
5. Du L, Wei N, Maiwall R, Song Y. Differential diagnosis of ascites: etiologies, ascitic fluid analysis, diagnostic algorithm. ClinChem Lab Med.. 2023;62(7):1266-1276. Published 2023 Dec 20. doi:10.1515/cclm-2023-1112

Performance

Method Description

The dye, bromcresol green (BCG), is added to the sample in an acid buffer. The color intensity of the blue-green albumin-BCG complex is directly proportional to the albumin concentration and is determined photometrically.(Package insert: Albumin reagent. Roche Diagnostic; V 11.0, 02/2022)

PDF Report

No

Day(s) Performed

Monday through Sunday

Report Available

Same day/1 to 2 days

Specimen Retention Time

1 week

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 modified from the manufacturer's instructions. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

82042

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
ALBFL	Albumin, BF	1747-5

Result ID	Test Result Name	Result LOINC® Value
ALBF	Albumin, BF	1747-5
797FL	Fluid Type, Albumin	14725-6