Test Definition: AMBF

Amylase, Body Fluid

Overview

Useful For

Evaluation of patients with a pathological accumulation of fluid to determine whether pancreatic inflammation, pancreatic fistula, or esophageal rupture may be contributing

Aiding in the diagnosis of pancreatitis

Method Name

Enzymatic Colorimetric

NY State Available

No

Specimen

Specimen Type

Body Fluid

Ordering Guidance

For pancreatic cyst fluid specimens, order AMLPC / Amylase, Pancreatic Cyst Fluid. Testing will be changed to AMLPC 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, Jackson Pratt [JP] drain)

-Pericardial fluid

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.

Forms

If not ordering electronically, complete, print, and send a Gastroenterology and Hepatology Test Request (T728) with the specimen.

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), feces, colostomy/ostomy, saliva, sputum, urine, vitreous fluid, or pancreatic cyst	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

Pleural fluid:

Amylase-rich pleural effusions are commonly associated with pancreatitis, esophageal rupture, malignancy, pneumonia,

and liver cirrhosis.(1) Pleural fluid amylase measurement is not routinely indicated though may help to narrow the differential due to these causes. Results should be interpreted in conjunction with serum measurement usually as a ratio of pleural fluid to serum amylase. The ratio of pleural fluid to serum amylase in effusions caused by pancreatic disease is much higher (mean + or - SD = 18 + or - 6.3) versus non-pancreatic disease (4.8 + or - 1.3) (P = 0.003).(2) Isoform analysis revealed that pancreatic amylase is diagnostic of pancreatitis-related pleural effusions, whereas salivary amylase isoforms are more often associated with esophageal rupture and malignancy.(3)

Peritoneal fluid:
The digestive enzymes amylase and lipase can be measured in the identification of pancreatic fluid in the peritoneal cavity. Concentrations are expected to be elevated and at least several-fold times higher in fluid of pancreatic origin compared to simultaneous concentrations in serum.(4) In contrast, amylase concentration in ascites of non-pancreatic origin was approximately half the plasma value.(5)

Drain fluid:
Amylase might be measured in a drain fluid to aid in the identification of internal pancreatic fistulas due to chronic pancreatitis or formation of a fistula after surgery.(6,7) Comparison to serum concentrations is recommended with elevations several-fold higher than blood being suggestive of the presence of pancreatic fluid in the drained cavity.

Reference Values

An interpretive report will be provided

Interpretation

Peritoneal and drain fluid amylase activity in non-pancreatic peritoneal fluid is often less than or equal to the serum amylase activity. Ascites associated with pancreatitis typically has amylase activity at least 5-fold greater than serum.(1)

Normal pleural fluid amylase activity is typically less than the upper limit of normal serum amylase and has a ratio of pleural fluid amylase to serum amylase ratio less than 1.0.(3)

All Other Fluids: Body fluid amylase activity may become elevated due to the presence of pancreatitis, esophageal rupture, or amylase producing neoplasms. Results should be interpreted in conjunction with serum amylase and other clinical findings.

Cautions

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

Icodextrin-based drugs may lead to decreased amylase results.

Clinical Reference

1. Burgess LJ. Biochemical analysis of pleural, peritoneal and pericardial effusions. Clin Chim Acta. 2004;343:61-84
2. Joseph J, Viney S, Beck P, Strange C, Sahn SA, Basran GS. A prospective study of amylase-rich pleural effusions with special reference to amylase isoenzyme analysis. Chest. 1992;102:1455-1459
3. Sahn SA. Getting the most from pleural fluid analysis. Respirology. 2012;17:270-277
4. Robert JH, Meyer P, Rohner A. Can serum and peritoneal amylase and lipase determinations help in the early prognosis of acute pancreatitis? Ann Surg. 1986;203:163-168
5. Runyon BA. Amylase levels in ascitic fluid. J Clin Gastroenterol. 1987;9(2):172-174
6. Lipsett PA, Cameron JL. Internal pancreatic fistula. Am J Surg. 1992;163(2):216-220

7. Kaman L, Behera A, Singh R, Katariya RN. Internal pancreatic fistulas with pancreatic ascites and pancreatic pleural effusions: recognition and management. ANZ J Surg. 2001;71(4):221-225
8. Nandakumar V, Dolan C, Baumann NA, Block DR. Effect of pH on the quantification of body fluid analytes for clinical diagnostic testing. Am J Clin Path. 2019;152(S1):S10-S11

Performance

Method Description
The liquid Roche amylase method is an enzymatic colorimetric test using 4,6-ethyliden (G7)-p-nitrophenol (G1)-alpha, D-maltoheptaoside (ethylidene-G7PNP) as a substrate. Human salivary and pancreatic amylases convert the substrate at approximately the same rate. The alpha-amylase cleaves the substrate into G2, G3, G4 PNP fragments. The G2 and G3 and G4 PNP fragments are further hydrolyzed by an alpha-glucosidase to yield p-nitrophenol and glucose. The rate of increase in absorbance at 415 nm (measuring the increase in p-nitrophenol) is proportional to amylase activity.(Package insert: Roche AMYL reagent. Roche Diagnostic Corp; 2018)

PDF Report
No

Day(s) Performed
Monday through Saturday

Report Available
Same day/1 to 2 days

Specimen Retention Time
1 week

Performing Laboratory Location
Mayo Clinic Jacksonville Clinical Lab

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.

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CPT Code Information

82150

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
AMBF	Amylase, BF	1795-4

Result ID	Test Result Name	Result LOINC® Value
AMBFL	Amylase, BF	1795-4
FLD21	Fluid Type, Amylase	14725-6