MAYO CLINIC LABORATORIES

Test Definition: AMLPC

Amylase, Pancreatic Cyst Fluid

Overview

Useful For

Aiding in distinguishing between pseudocysts and other types of pancreatic cysts when used in conjunction with imaging studies, cytology, and other pancreatic cyst fluid tumor markers

Method Name

Substrate Kinetic

NY State Available

Yes

Specimen

Specimen Type

Pancreatic Cyst Fluid

Ordering Guidance

For other body fluid specimens (eg, peritoneal, pleural), order AMBF / Amylase, Body Fluid. Testing will be changed to AMBF if this test is ordered on any fluid other than pancreatic fluid.

Specimen Required

Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Container/Tube: Plain vial
Specimen Volume: 1 mL
Additional Information: A minimum of 0.5 mL is required for testing; specimens less than 0.5 mL may be rejected.

Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:
-Oncology Test Request (T729)
-Gastroenterology and Hepatology Test Request (T728)

Specimen Minimum Volume

0.5 mL

Reject Due To

Gross hemolysis	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Pancreatic Cyst Fluid	Frozen (preferred)	30 days	
	Ambient	7 days	
	Refrigerated	7 days	

Clinical & Interpretive

Clinical Information

Amylases are a group of hydrolases that degrade complex carbohydrates into fragments. Amylase is produced by the exocrine pancreas and the salivary glands to aid in the digestion of starch. It is also produced by the small intestine mucosa, ovaries, placenta, liver, and fallopian tubes.

Measurement of amylase in pancreatic cyst fluid is often used in conjunction with tumor markers carcinoembryonic antigen, and CA19-9 as an aid in the differential diagnosis of pancreatic cysts lesions. Amylase seems to be particularly helpful in excluding pancreatic pseudocysts. A number of studies have demonstrated that amylase levels are typically very high, usually in the thousands in pseudocysts, therefore, low amylase values virtually exclude pseudocysts. Based on the evidence available, the American College of Gastroenterology practice guidelines for the Diagnosis and Management of Neoplastic Pancreatic Cysts suggest that an amylase cutoff value of 250 U/L is useful to exclude pseudocysts.

Reference Values

An interpretive report will be provided.

Interpretation

A pancreatic cyst fluid amylase concentration of less than 250 U/L indicates a low risk of a pseudocyst and is more consistent with cystic neoplasms such as mucinous cystic neoplasms (MCN), intraductal papillary mucinous neoplasm (IPMN), serous cystadenomas, cystic neuroendocrine tumor, and mucinous cystadenocarcinoma. High pancreatic cyst fluid amylase values are nonspecific and occur both in pseudocysts and some mucin-producing cystic neoplasms including MCN, IPMN, and mucinous cystadenocarcinoma.

In-house studies showed that using a cutoff value of less than 250 U/L to exclude a pseudocyst has 94% sensitivity and 42% specificity. Cysts with amylase levels of less than 250 U/L included 69% of adenocarcinomas, 31% of intraductal papillary mucinous neoplasia, 55% of mucinous cystadenomas, 64% serous cystadenomas, and 6% of pseudocysts.

Cautions

This test result should not be the sole basis for diagnosis. Test results should always be correlated with imaging and cytology.

Supportive Data

In-house studies to verify the cutoff value of 250 U/L showed that 94% (66/70) of pseudocysts had a value of greater than or equal to 250 U/L. Cysts with amylase levels of less than 250 U/L included 69% of adenocarcinomas, 31% of intraductal papillary mucinous neoplasia, 55% of mucinous cystadenomas, 64% serous cystadenomas, and 6% of pseudocysts. Therefore, using a cutoff of less than 250 U/L to exclude a pseudocyst has 94% sensitivity and 42% specificity.

Clinical Reference

1. Snozek CL, Mascarenhas RC, O'Kane DJ. Use of cyst fluid CEA, CA19-9, and amylase for evaluation of pancreatic lesions. Clin Biochem. 2009;42(15):1585-1588
2. van der Waaij LA, van Dullemen HM, Porte RJ. Cyst fluid analysis in the differential diagnosis of pancreatic cystic lesions: a pooled analysis. Gastrointest Endosc. 2005;62(3):383-389
3. Elta GH, Enestvedt BK, Sauer BG, Lennon AM. ACG clinical guideline: Diagnosis and management of pancreatic cysts. Am J Gasroenterol. 2018;113(4):464-479
4. Brugge WR. Diagnosis and management of cystic lesions of the pancreas. J Gastrointest Oncol. 2015;6(4):375-388. doi:10.3978/j.issn.2078-6891.2015.057

Performance

Method Description

The Roche amylase method is an enzymatic colorimetric test using 4,6-ethylidene (G7)-p-nitrophenol (G1)-alpha, D-maltoheptaoside (ethylidene-G7PNP) as a substrate. Human salivary and pancreatic amylases (alpha-amylase) convert the substrate at approximately the same rate. The alpha-amylase cleaves the substrate into G2, G3, G4 p-nitrophenol (PNP) fragments. The G2, G3, and G4 PNP fragments are further hydrolyzed by an alpha-glucosidase to yield PNP and glucose. The rate of increase in absorbance at 415 nm (measuring the increase in PNP) is directly proportional to amylase activity.(Package insert: Roche AMYL2 reagent. Roche Diagnostic Corp; V10 12/2018)

PDF Report

No

Day(s) Performed

Monday through Saturday

Report Available

1 to 3 days

Specimen Retention Time

12 months

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Superior Drive

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.

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Amylase, Pancreatic Cyst Fluid

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

82150

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
AMLPC	Amylase, Pancreatic Cyst	48996-3

Result ID	Test Result Name	Result LOINC® Value
SITE6	Site	39111-0
AMYPC	Amylase, Pancreatic Cyst	48996-3