Test Definition: CEAPC

Carcinoembryonic Antigen (CEA), Pancreatic Cyst Fluid

Overview

Useful For

When used in conjunction with imaging studies, cytology, and other pancreatic cyst fluid tumor markers:
-Distinguishing between mucinous and nonmucinous pancreatic cysts
-Determining the likely type of malignant pancreatic cyst

Method Name

Immunoenzymatic Assay

NY State Available

No

Specimen

Specimen Type

Pancreatic Cyst Fluid

Ordering Guidance

This test should not be ordered for pancreatic fluid of noncyst origin (eg, pancreatic duct fluid; peripancreatic fluid) since reference values have not been established for this specimen type. For ordering assistance call 800-533-1710.

Specimen Required

Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Container/Tube: Plain, plastic, screw-top tube
Specimen Volume: 1 mL

Forms

If not ordering electronically, complete, print, and send an Oncology Test Request (T729) with the specimen.

Specimen Minimum Volume

0.5 mL

Reject Due To

Gross hemolysis	OK
Hemolysis >5000 mg/dL	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Pancreatic Cyst Fluid	Frozen (preferred)	90 days	
	Ambient	24 hours	
	Refrigerated	72 hours	

Clinical & Interpretive

Clinical Information

Cystic lesions of the pancreas are of various types including:
Benign cysts:
-Inflammatory cysts (pseudocysts)
-Serous cysts (serous cystadenoma)

Mucinous cysts:
-Premalignant (mucinous cystadenoma)
-Malignant (cystadenocarcinoma, intrapapillary mucinous neoplasia)

The diagnosis of pancreatic cyst type is often difficult and may require correlating imaging studies with results of cytological examination and tumor marker testing performed on cyst aspirates. Various tumor markers have been evaluated to distinguish non-mucinous, nonmalignant pancreatic cysts from mucinous cysts, which have a high likelihood of malignancy. Carcinoembryonic antigen (CEA) has been found to be the most reliable tumor marker for identifying pancreatic cysts that are likely mucinous. In cyst aspirates, CEA concentrations of 200 ng/mL and above are highly suspicious for mucinous cysts. The greater the CEA concentration, the greater the likelihood the mucinous cyst is malignant. However, CEA testing does not reliably distinguish between benign, premalignant, or malignant mucinous cysts. CEA test results should be correlated with the results of imaging studies, cytology, other cyst fluid tumor markers (ie, amylase and CA [carbohydrate antigen] 19-9), and clinical findings for diagnosis.

Reference Values

An interpretive report will be provided that includes assay information and an interpretation based on the measured carcinoembryonic antigen concentration in the pancreatic cyst fluid.

Interpretation

A pancreatic cyst fluid carcinoembryonic antigen (CEA) concentration greater than or equal to 200 ng/mL is very suggestive for a mucinous cyst but is not diagnostic. The sensitivity and specificity for mucinous lesions are approximately 62% and 93%, respectively, at this concentration. Cyst fluid CEA concentrations less than 5 ng/mL indicate a low risk for a mucinous cyst and are more consistent with serous cystadenoma, fluid collections complicating pancreatitis, cystic neuroendocrine tumor, or metastatic lesions. CEA values between these extremes have limited diagnostic value.

Cautions

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

cytology.

This test does not distinguish between malignant and nonmalignant mucinous cysts.

In rare cases, some individuals can develop antibodies to mouse or other animal antibodies (often referred to as human anti-mouse antibodies [HAMA] or heterophile antibodies), which may cause interference in some immunoassays. Caution should be used in interpretation of results and the laboratory should be alerted if the result does not correlate with the clinical presentation.

Clinical Reference

1. Brugge WR, Lewandrowski K, Lee-Lewandrowski E, et al. Diagnosis of pancreatic cystic neoplasms: a report of cooperative pancreatic cyst study. Gastroenterology. 2004;126(5):1330-1336
2. Snozek CL, Jenkins SM, Bryant SC, et al. Analysis of CEA, CA 19-9, and amylase in pancreatic cyst fluid for diagnosis of pancreatic lesions. Clin Chem. 2008;54(Suppl S):A126-127
3. Khalid A, Brugge W. ACG practice guidelines for the diagnosis and management of neoplastic pancreatic cysts. Am J Gastroenterol. 2007;102(10):2339-2349
4. Elta GH, Enestvedt BK, Sauer BG, Lennon AM. ACG clinical guideline: diagnosis and management of pancreatic cysts. Am J Gastroenterol. 2018;113(4):464-479. doi:10.1038/ajg.2018.14

Performance

Method Description

The Access carcinoembryonic antigen (CEA) assay is a 2-site immunoenzymatic sandwich assay using 2 mouse monoclonal anti-CEA antibodies (Mab) that react with different epitopes of CEA. A sample is added to a reaction vessel, along with the first anti-CEA Mab-alkaline phosphatase conjugate and the second anti-CEA Mab bound to paramagnetic particles. The incubation is followed by a magnetic separation and washing. The chemiluminescent substrate Lumi-Phos 530 is added to the vessel, and light generated by the reaction is measured with a luminometer. The light production is proportional to the concentration of CEA in the sample. The amount of analyte in the sample is determined by means of a stored, multipoint calibrator curve.(Package insert: Access CEA. Beckman Coulter, Inc.; 2019)

PDF Report

No

Day(s) Performed

Monday through Saturday

Report Available

1 to 3 days

Specimen Retention Time

90 days

Performing Laboratory Location

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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.

CPT Code Information

82378

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
CEAPC	CEA, Pancreatic Cyst	97747-0

Result ID	Test Result Name	Result LOINC® Value
SITE6	Site	39111-0
CEAP	CEA, Pancreatic Cyst	97747-0