MAYO CLINIC LABORATORIES

Test Definition: PACP

Prostatic Acid Phosphatase, Serum

Overview

Useful For

Aiding in predicting recurrence after radical prostatectomy for clinically localized prostate cancer

Following response to androgen ablation therapy, when used in conjunction with prostate-specific antigen

Method Name

Automated Chemiluminescent Immunometric Assay

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Patient Preparation: For 12 hours before specimen collection, patient **should not** take multivitamins or dietary supplements (eg, hair, skin, and nail supplements) containing biotin (vitamin B7).
Collection Container/Tube:
Preferred: Red top
Acceptable: Serum gel
Submission Container/Tube: Plastic vial
Specimen Volume: 1 mL
Collection Instructions: Centrifuge and aliquot serum into a plastic vial.

Specimen Minimum Volume

0.4 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	7 days	

	Frozen	180 days	

Clinical & Interpretive

Clinical Information

Prostatic acid phosphatase (PAP), a glycoprotein synthesized by the prostate gland, is a member of a diverse group of isoenzymes that are capable of hydrolyzing phosphate esters in acidic medium. They are classified based on their electrophoretic mobilities.

Prostatic acid phosphatase was a major tumor marker for prostate cancer for more than 50 years.(1) However, PAP is no longer used to screen for or stage prostate cancer. In most instances, serum prostate specific antigen (PSA) is used instead. PAP usefulness is now limited to niche applications. Pre-treatment PAP measurement may add unique, clinically useful prognostic information for predicting recurrence in men who are undergoing radical prostatectomy for clinically localized prostate cancer. PAP also may be useful for following the progression of disease response to therapy in men treated by androgen ablation. However, for both applications, PSA provides more information and also should be utilized.

Reference Values

< or =2.1 ng/mL

Interpretation

Prostatic acid phosphatase (PAP) levels above the reference range may indicate prostate cancer but can be due to many other factors, see Cautions.

A rise in PAP levels in patients with known prostate cancer can indicate tumor progression or recurrence. However, there is considerable intra-subject biological variability, limiting the usefulness of this test.

Cautions

Prostatic acid phosphatase (PAP) measurement must not be regarded as an absolute test for malignancy since other factors, including benign prostatic hyperplasia, prostatic infarction, and manipulation of the prostate gland may result in elevated serum PAP concentrations.

PAP measurements provide little additional information beyond that provided by prostate-specific antigen measurements.

Human anti-mouse antibodies (HAMA) may be present in specimens from patients who have received immunotherapy utilizing monoclonal antibodies. Other heterophile antibodies also may be present in patient specimens. This assay has been specifically formulated to minimize the effects of these antibodies on the assay. However, carefully evaluate results from patients known to have such antibodies.

Clinical Reference

1. Moul JW, Connelly RR, Perahia B, McLeod DG. The contemporary value of pretreatment prostatic acid phosphatase to predict pathological stage and recurrence in radical prostatectomy cases. J Urol. 1998;159(3):935-940
2. Beaver TR, Schultz AL, Fink LM, Andersen CA, Donohue RE. Discordance between concentration of prostate-specific antigen and acid phosphatase in serum of patients with adenocarcinoma of the prostate. Clin Chem. 1988;34(7):1524

3. Velonas VM, Woo HH, dos Remedios CG, Assinder SJ. Current status of biomarkers for prostate cancer. Int J Mol Sci. 2013;14(6):11034-11060. doi:10.3390/ijms140611034
4. Kong HY, Byun J. Emerging roles of human prostatic acid phosphatase. Biomol Ther (Seoul). 2013;21(1):10-20. doi:10.4062/biomolther.2012.095
5. Alpert E, Akhavan A, Gruzman A, et al. Multifunctionality of prostatic acid phosphatase in prostate cancer pathogenesis. Biosci Rep. 2021;41(10):BSR20211646. doi:10.1042/BSR20211646

Performance

Method Description
The patient sample is added to a solid phase that is coated with a mouse monoclonal antibody specific for prostatic acid phosphatase (PAP). A goat-anti-PAP-alkaline phosphatase conjugate is added to form an antibody sandwich complex. Excess conjugate is removed by washing, and an adamantyl dioxetane phosphate substrate is added to produce chemiluminescence. Light emission is proportional to PAP concentration in the specimen.(Package insert: IMMULITE 2000 PAP. PIL2KPA-17. Siemens Healthcare; 03/15/2018)

PDF Report
No

Day(s) Performed
Monday, Wednesday, Friday

Report Available
1 to 3 days

Specimen Retention Time
2 weeks

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.

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.

Test Definition: PACP

Prostatic Acid Phosphatase, Serum

CPT Code Information

84066

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
PACP	Prostatic Acid Phosphatase, S	20420-6

Result ID	Test Result Name	Result LOINC® Value
PACP	Prostatic Acid Phosphatase, S	20420-6