

Acid Phosphatase (Prostatic Fraction OR Total and Prostatic Fractions) – [Serum] Analysis

Objective

The objective of this test is to measure the levels of total and prostatic acid phosphatase in serum. It is primarily used to assist in diagnosing and monitoring prostate cancer, metastatic disease, and certain bone or blood disorders.

Materials and Methods

Materials:

- Serum sample from patient
- Acid phosphatase assay reagents
- Spectrophotometer or automated biochemical analyzer
- Standard laboratory equipment (centrifuge, pipettes, vials)

Methods:

1. Sample Collection: Collect venous blood and separate serum using centrifugation.
2. Total Acid Phosphatase Measurement: Analyze total enzyme activity using colorimetric or kinetic enzymatic methods.
3. Prostatic Fraction Measurement: Inhibit non-prostatic fractions (e.g., using tartrate) to determine prostatic enzyme activity.
4. Calculation: Subtract prostatic fraction activity from total to assess relative contributions.
5. Quality Control: Include calibration and control sera to ensure accuracy of results.
6. Interpretation: Compare levels against reference ranges and correlate with clinical findings (e.g., elevated in prostate carcinoma or metastasis).

Results

- Normal total acid phosphatase: 0–3.5 U/L (varies by lab)
- Elevated prostatic fraction: Suggestive of prostate cancer or metastatic spread
- Non-prostatic elevation: May indicate bone disease, hemolysis, or other conditions

Conclusion

Serum acid phosphatase testing, especially the prostatic fraction, provides valuable diagnostic information for prostate cancer and related conditions. While largely replaced by PSA testing, it remains relevant in certain diagnostic contexts and for historical comparisons.