

AFP – Alpha Feto Protein – [Serum] Analysis

Objective

The objective of this test is to measure alpha-fetoprotein (AFP) levels in serum. AFP testing is primarily used for screening, diagnosis, and monitoring of liver cancer (hepatocellular carcinoma), germ cell tumors, and in prenatal screening for neural tube defects and chromosomal abnormalities.

Materials and Methods

Materials:

- Serum sample from patient
- Immunoassay kits (e.g., ELISA or chemiluminescence)
- Microplate reader and washing system
- Standard laboratory equipment (pipettes, centrifuge, vials)

Methods:

1. Sample Collection: Collect venous blood and separate serum via centrifugation.
2. AFP Measurement: Perform immunoassay to detect and quantify AFP levels.
3. Calibration: Use standard curves and controls for accurate quantification.
4. Quality Control: Ensure assay performance by running positive and negative controls.
5. Interpretation: Compare results against reference ranges; elevated levels indicate possible liver or germ cell tumors, while low or high levels in pregnancy can suggest fetal anomalies.

Results

- Normal range (adults): < 10 ng/mL (varies by laboratory)
- Elevated AFP: Suggestive of hepatocellular carcinoma, testicular/ovarian germ cell tumors, or fetal abnormalities (if maternal serum)
- Interpretation should be combined with imaging and other tumor markers for diagnosis

Conclusion

Serum AFP testing is a valuable marker for liver cancer and germ cell tumors, as well as for prenatal screening purposes. Its interpretation requires correlation with clinical findings, imaging studies, and additional diagnostic tests.