

Adrenaline (Epinephrine) – [Plasma] Analysis

Objective

The objective of this test is to measure plasma adrenaline (epinephrine) concentration, which aids in diagnosing catecholamine-secreting tumors such as pheochromocytoma, and in evaluating adrenal medulla function and stress-related disorders.

Materials and Methods

Materials:

- Plasma sample from patient
- High-performance liquid chromatography (HPLC) or ELISA kits for adrenaline detection
- Standard laboratory equipment (centrifuge, pipettes, vials)

Methods:

1. Sample Collection: Collect venous blood in EDTA tubes and keep chilled; separate plasma immediately by centrifugation.
2. Preservation: Add antioxidant or acid preservative to prevent catecholamine degradation.
3. Analysis: Quantify plasma adrenaline levels using HPLC with electrochemical detection or immunoassay methods.
4. Quality Control: Utilize calibration curves and internal standards for precise measurement.
5. Interpretation: Compare results with reference ranges, considering clinical symptoms and related catecholamine tests (e.g., noradrenaline).

Results

- Normal range: Typically < 0.5–0.9 nmol/L (varies by laboratory)
- Elevated levels: Suggest pheochromocytoma, severe stress response, or adrenal medulla hyperactivity
- Decreased levels: Rare but may occur in adrenal insufficiency

Conclusion

Plasma adrenaline measurement provides critical diagnostic information for catecholamine-secreting tumors and stress-related endocrine disorders. It is best interpreted alongside urinary catecholamine measurements and clinical findings.