

Study of Serum Biochemistry with a Semi-Autoanalyzer

Practical 06 | Pharmacology III

Aim

To study Serum Biochemistry with a Semi-Autoanalyzer, and interpret the recorded observations.

Principle

- The analyzer measures a method-dependent optical reaction. Calibration, reagent blank and quality-control records are necessary before a numerical serum result can be interpreted.
- This exercise uses a software/video simulation or an instructor-provided dataset.
- A response depends on the model, intervention, controls and observation period; comparisons must use the same endpoint.
- Record only supplied observations. Distinguish illustrative or simulated values from results obtained in an actual study.

Materials and Apparatus

- Assigned software/video, prepared teaching records and completed control/test data.
- Assigned pharmacology simulation/video and completed observation dataset.
- Computer, graphing or calculation software and a structured record sheet.

Method

1. Identify the simulated preparation, control group and response being measured.
2. Record the model settings and treatment labels supplied in the exercise.
3. Review the baseline or control trace before comparing the intervention traces.
4. Read the stated response endpoint using the same definition for every group.
5. Tabulate the completed simulation observations and calculate the assigned comparison.
6. Explain the mechanism, control response and any limitation of the model.

Observation Record

Complete this record using actual laboratory findings or the provided teaching data.

Observation / parameter	Record / finding
Analyte	_____
Method/wavelength	_____
Standard response	_____
Test response	_____
Quality control	_____
Calculated result	_____

Calculations and Interpretation

- For a valid blank-corrected single-standard proportional method: test concentration = test response/standard response × standard concentration.
- Use the method-specific calibration when a single-standard relationship is inappropriate.

Result

Report the supplied simulated response, its defined comparison and the mechanism supported by the model. Label the observations as simulated.

Finding: _____

Conclusion: _____

Precautions

- Keep software units, treatment labels and endpoint definitions consistent.
- Use supplied simulation data and distinguish an illustration from an observed outcome.
- A model demonstrates an experimental principle; it does not establish an individual patient treatment.

Viva Questions

1. Why use a control response?

It separates the intervention effect from baseline variation in the simulated model.

2. Why define the endpoint before comparison?

Changing the endpoint after reviewing results can bias the interpretation.

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