Category: Biochemistry
Title: Estimation of Calcium in blood serum samples on Mini CHEM 100
SOP No.: 11/03
Date first effective: 1st January2025 **Review date:** 31st December 2025
Department of Clinical Pharmacology, 1st Floor, New MS Building,
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1. Purpose

The purpose of this Standard Operating Procedure (SOP) is to outline the procedure for estimation of calcium on Mini CHEM 100 in the Biochemistry lab of Department of Clinical Pharmacology

2. Scope

This SOP covers the procedure of estimation of calcium on Mini CHEM 100 in blood serum.

3. Responsibility

Lab technician, Lab attendant, or any other appropriately qualified staff in the team, designated by the Head of Department, will be responsible for analysis.

4. Reference

- Departmental SOP no 10/05: Blood collection.
- Departmental SOP no 24/04: Waste management.
- Biochemistry labs SOP no 10/03: Mini CHEM 100 instrument.
- Kit insert

5. Detailed Instructions

1. The whole blood sample is collected in plain bulb as per departmental SOP no. 10/04 and is processed as per biochemistry lab SOP no 01/04.
2. Remove the kit kept in the **Refrigerator** located in the main Biochemistry laboratory of Department of Clinical Pharmacology, M.S. Building, 1st Floor.
   Use kit: SPINREACT Calcium KIT,

KIT Expiry: 2 years after the manufacturing date mentioned on kit

Manufactured by: - Spinreact

3. **Reagent 1: Calcio Arsenzo (Reagent is ready to use)**

   Working Reagent Stability:-

   - The unopened reagent is stable till expiry date when stored at (2-8°C), when working solution become turbid discard it.

4. As per the instruction displayed on the machine, aspirate distilled water for washing purpose taken from Milli Q water purifier of Post PCR Lab/.
5. Press **CAL** displayed on the machine.
6. When calcium parameters are displayed, water is aspirated, followed by reagent blank, standard and sample in glass tubes (the tubes uses for Mini CHEM 100 are kept in a labeled box on left side of the machine).
7. Dilution is prepared for reagent blank by adding **10µl** of distilled water in **500µl** of calcium arsenazo reagent in new glass tube.
8. Add **10µl** of standard in **500µl** of calcium arsenazo reagent in new glass tube.
9. Add **10µl** of sample in **500µl** of calcium arsenazo reagent in new glass tube.
10. For more than 1 sample, add **10µl** of sample in **500µl** of calcium arsenazo reagent in new glass tube.
11. Mix well and read the absorbance against blank.
12. Aspirate the standard followed by the samples (Calcium standard solution:10.0 mg/dl)
13. Calculation is done automatically by the machine. Calcium acid activity **[mg/dl].**
14. **Linearity:** Upto 16 mg/dl. For higher values it is recommended to dilute the samples with normal saline and repeat the assay. Multiply the results with the dilution factor.
15. The results are entered in form sent with the sample by the concerned doctor. The form is attached in Appendix 1 as in biochemistry lab SOP no 10/03. The results are also entered in biochemistry report book.
16. Values are evaluated and signed by biochemist, /laboratory in charge and Study-coordinator and PI.

17. Internal Quality control is done once in a week as per biochemistry labs SOP no 05/01 (SOP for external and internal QCs).
18. Once the calcium parameter is completed for all samples, aspirate distilled water for washing purpose
19. After washing is completed, switch off the adaptor and then switch off the main switch.
20. Samples are discarded as per departmental SOP no. 24/04 (SOP of waste management).