CURRENT

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Title: Biochemistry Analysis of patient serum samples on Mini CHEM 100Diagnostics semi automated Machine
SOP No.: Biochemistry01/01
Date first effective: 01st January2025 **Review date:** 31st December 2025
Department of Clinical Pharmacology, 1st Floor, New MS Building,
Seth GS Medical College & KEM Hospital, Parel, Mumbai 400012

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1. Purpose

The purpose of this Standard Operating Procedure (SOP) is to outline the procedure for estimation of biochemical parameters on Mini CHEM 100ARK Diagnostics semi automated machine in Biochemistry lab of Department of Clinical Pharmacology.

2. Scope

This SOP covers the procedures of performing analysis of biochemical parameters on Mini CHEM 100ARK Diagnostics using serum sample.

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 SOP nos. 02/01 to 08/01- Analysis of ALT, AST, ALP, Creatinine, Bilirubin, Urea and total protein

5. Detailed instructions

The following will be required for performing the analysis on the semi automated machine

a) Blank: The reagent for each respective biochemical parameter without the sample should be run as the blank.

b) Standard: Each reagent kit of the respective biochemical parameters contains a sample of known concentration which is the 'standard sample'

c) Sample: The serum sample of the patient for which the biochemical analysis is to be performed is to be used. The method of preparation of the serum sample is given the department SOP no.10/05.

The samples for biochemistry are processed on semi-automatic Mini CHEM 100 ARK Diagnostics Biochemistry Analyzer which is located in the Biochemistry lab of the Department of Clinical Pharmacology, M. S Building, 1st Floor.

Steps for starting the Machine

- Switch on the power of the instrument by flipping the small power switch.
- Switch on the power button of the instrument which is located behind the instrument.
- An automatic start up procedure is initiated. When start up procedure is completed, main menu is displayed.

Steps for measuring a sample using the machine

- Select **"MEASURE"** from the main menu.
- Select required parameter from the analysis code screen of the main menu and press the designated number for that parameter. For e.g: if the number for Creatinine is '1' then press the button '1' on the switch board. To confirm selection press **"ENTER"**
- Refer to the respective SOPs [Biochemistry SOP 02-08] of every parameter for preparation of the reagent mixtures for blank, standard and sample solutions.
- When the analyzer displays **"ASPIRATE"** aspirate the cleaner solution [Provided by the manufacturer]through the sipper tube located on the left bottom of the machineby pushing the button behind the sipper tube.
- The analyzer will then display '**ASPIRATE DISTILLED WATER'.** Pass the Milli Q deionized water through the sipping tube and press the button behind the machine to allow the aspiration procedure.
- After completion of the aspiration, the Machine will display **'ASPIRATE BLANK'**. Pass a solution of the reagent depending upon the test through the sipping tube and press the button behind the machine to let the solution pass through the tube.
- The Machine will then display '**ASPIRATE STANDARD'**. Pass a solution of a known reference standard of the respective test through the sipping tube by pressing the button at the back of the machine.
- After aspirating the standard solution, the screen will display '**ASPIRATE SAMPLE'.** Pass the sample solution for each individual test as mentioned in the respective SOPs through the sipping tube and press the button at the back of the machine to continue aspiration.

- The analyzer will automatically start the incubation countdown with a delay time followed by real time. The end of the analysis is signaled by an acoustic beep followed by the display of the absorbance and the reading for each respective sample.
- After completion of the samples, press '**EXIT**' button.
- The screen will display '**CLEAN FLOW THROUGH CELL',** aspirate the cleaning solution through the sipping tube and press **'ENTER'**.
- After aspiration of the solution the machine will beep once and the main screen will be displayed. Choose another test by clicking the respective number.
- After every reading, the results are automatically printed on the thermal printer which is internally located in the machine.
- To change the program or settings of the machine, go to the main menu and select '**PROGRAM**'. Go to the respective parameter by pressing the respective number. In each respective parameter, enter the program details and press **'ENTER'** to save.
- External Quality Control from CMC QC Vellore is done once in a month as per biochemistry labs SOP no 09/01 (SOP for external and internal QCs).

Safety

The safety precautions should be followed strictly as the Operators Manual of Mini CHEM 100 ARK Diagnostic (Manual is kept in a drawer in biochemistry room labeled as **biochemistry instrument manuals)**.