

PROCEDURE

Corewell Health East - Laboratory Auto Technical Specimen Clarification by Ultracentrifugation - Dearborn, Taylor, Wayne

This Procedure is Applicable to the following Corewell Health sites:

Corewell Health Dearborn Hospital, Corewell Health Taylor Hospital, Corewell Health Wayne Hospital

Applicability Limited to: Within Corewell Health Wayne Hospital, Wayne only.

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Functional Area: Clinical Operations, Laboratory

Lab Department Area: Lab - Chemistry

1. Principle

The accumulation of lipoprotein particles, especially chylomicrons and large VLDL particles, leads to the milky or cloudy appearance of blood samples that can interfere with certain testing methodologies. Ultracentrifugation at extremely high speeds is performed to separate the lipids, which then form a layer at the top of the tube, allowing the clear infranatant (the liquid below the lipid layer) to be analyzed without lipoprotein interferences.

2. Responsibility

Personnel who have completed the competency requirements will perform these tasks.

3. Definitions

A. mL-milliliter

4. Specimen

- a. Any specimen which requires clarification can be ultracentrifuged. See individual testing procedures for lipoprotein interferences. Note: Not all testing procedures allow for lipemic samples to be ultracentrifuged.
- b. A minimum of 2 mL of sample is suggested for adequate retrieval of the clarified sample.

5. Reagent/Equipment Needed

- A. Hettich MIKRO 200 centrifuge
- B. Extended Fine Tip transfer pipettes
- C. 1.5 or 2.0 mL plastic conical microcentrifuge tubes

6. Maintenance

See site specific procedures to perform and document centrifuge maintenance.

Entities will reference associated Documentation contained within this document as applicable
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7. Procedure

- A. The electronically operated cover interlock mechanism prevents operation until the cover is completely closed and locked and prevents the cover from opening when the centrifuge is in operation. When the cover is completely closed and locked, an operating cycle can be initiated.
- B. Press the Stop/Open button; the lid opens at approximately 45°.
- C. Loading
 - 1. Fill all microcentrifuge tubes outside the centrifuge.
 - 2. Check that the rotor is firmly seated.
 - 3. Place the safety lid centrally on the rotor and turn the safety lid clockwise until it is tightly closed.

NOTE: If the lid is not on the rotor, the centrifuge will make a very loud whining noise.

- 4. Centrifuge samples for 15 minutes at 15000 rpm
- 5. Unloading
 - a. The centrifuge will automatically stop, and the cover will open.
 - b. Turn the safety lid anticlockwise until it is open.
 - c. Carefully remove samples, noting that the lipid layer rises to the top.
 - d. Utilize the Extended Transfer Pipets to bypass the lipid layer and remove the serum or plasma underneath.
 - e. Place serum or plasma into a properly labeled sample cup and perform testing per the individual testing procedures.
 - 1) The specimen should be clearly labeled as being ultracentrifuged to avoid using it for testing that does not allow ultracentrifugation.
- D. Add a comment to the results that testing was performed on an ultracentrifuged specimen using the smart phrase” .ULTRA “(Specimen ultracentrifuged to correct for the effects of lipemia.)
- E. Emergency Stop: The STOP/OPEN button may be pressed at any time to stop the centrifuge. Toggle to on/off switch (located in the back of the instrument) if the STOP/OPEN button fails to stop the centrifuge.

8. Limitations

- A. Highly corrosive substances may impair the mechanical strength of rotors. Clean only with approved cleansers.
- B. Protect the device against external liquids.
- C. Wear personal protective equipment when cleaning the device-see [Corewell Health East - Laboratory Personal Protective Measures - All Beaumont Hospitals](#).
- D. Follow all safety precautions as stated in Hettich Instructions for Use Manual.

9. Revisions

Corewell Health reserves the right to alter, amend, modify or eliminate this document at any time without prior written notice.

10. References

- A. Hettich MIKRO 200/200R Instructions for Use Manual Rev. 13/01.2024

11. Resources

- A. [Corewell Health East - Centrifuge Use and Maintenance - Taylor](#)
- B. [Corewell Health East - Laboratory Centrifuges - Wayne & Canton](#)
- C. [Laboratory Centrifuge Function Checks-Dearborn](#)

12. Procedure Development and Approval

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13. Keywords

lipemia, ultracentrifugation