LH AUTOMATED BODY FLUID CELL COUNT

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PURPOSE

To provide instruction for cycling body fluid specimens on the LH750 using the manual aspiration mode and the Body Fluid Application software.

BACKGROUND

The body fluid application on the LH750 is accessed using the Body Fluid Checkbox on the LH workstation providing a Total Nucleated Cell (TNC) count.

SPECIMEN

Type of Specimen

Hyaluronidase-treated Synovial Fluids and Serous fluids: pleural, pericardial, peritoneal, peritoneal lavage, and peritoneal dialysates. CSF and Bronchial lavage/wash specimens are NOT run on the LH750. They are performed manually.

Specimen Storage and Stability

Store refrigerated after collection. Transport as soon as possible after collection. Process fluids within 8 hours of collection.

Specimen may be stored at 2-8°C for 1 week.

Acceptable Anticoagulants

K2 or K3 EDTA for serous fluids
K2 or K3 EDTA or Heparin or none for Synovial Fluids.

Special Handling

Treat Synovial Fluids with Hyaluronidase prior to testing. Add 1 ml synovial fluid to 5 mg hyaluronidase. Mix for 5 minutes.

Criteria for Unacceptable Specimens

Specimens with clots or marked clumping are not acceptable for automated aspiration.

Sample Volume

200 µL minimum for aspiration

EQUIPMENT/SUPPLIES

- Coulter LH Diluent
- Hyaluronidase, if indicated, for use with synovial fluid samples.
  - Hyaluroidase is stable for 1 year after opening when stored at the recommended storage conditions:
    - Store at -20°C temperature in original capped container.
    - Avoid exposure to heat.
    - Discard and open a new vial if stability is in question.

QUALITY CONTROL

1. Two levels of 5C Control are performed each 8 hour shift of operation.

2. A background count is performed using LH diluent prior to aspiration of *each* patient sample. Results for background must fall within established limits - less than 0.20 for WBC and RBC. This will be accompanied by an R flag.

INSTRUCTIONS

Body Fluid Background

Run prior to each body fluid

1. Hold a clean test tube under the open mode probe

2. Use F04, enter, to dispense diluent into a clean tube to use for the body fluid background.

3. Press the Stop button on the analyzer to exit the F key mode.

4. On the Workstation, put a check in the “Body Fluid” box

5. Press the ID button on the Analyzer, type an ID number

6. Press enter

7. Present the tube of diluent to the open mode (secondary) probe to aspirate diluent

8. Check the results of the body fluid background counts for RBC and WBC. If the count is as low as it needs to be, it should be flagged in red and have an R flag.

9. Report may not print automatically. Request a printout.

10. If the Body fluid background count is too high, repeat it until it is in or try another instrument (if available).

Body Fluid Analysis

1. On the Workstation, put a check in the “Body Fluid” box

2. Check sample for clots before running. If small clots are present, remove them before running the sample. See Reporting Results if clots are present/removed.

3. Must be run in Manual mode (open tube)

4. Use the bar code reader to enter the accession number for identification or press the ID button on the Analyzer, then type in the full accession number and press enter

5. Mix the specimen well

6. Aspirate the sample

7. Report may not print automatically. Request a printout.

8. Review WBC/TNC results for flags or codes. If unable to resolve WBC "R" flags or cellular interference codes (which, in Body Fluid Mode, always relate to the WBC count) by repeat analysis, perform manual cell count. Flagging of the RBC on the patient BF count is not applicable.

PERFORMANCE CHARACTERISTICS

Reportable Range

TNC: 200 – 350,000 u/L

Normal Values

Serous Fluids (Pleural/Peritoneal):	TNC:	0-300 cells/mcL
	RBC:	None.
Pericardial Fluid:	TNC:	None.
	RBC:	None.
Synovial Fluids:	TNC:	0-300 cells/mcL
	RBC:	None.

REPORTING RESULTS

1. Enter the body fluid source, total volume, color and appearance in the LIS.

2. Visually inspect the fluid and record in the LIS any clots or visible cell clumping. When a result of "Yes" is entered in the result field "Check specimen integrity- Clots Present?", the LIS will automatically append the comment BFCLOT, which reads "Body Fluid specimen has clots present."

3. Report "Yes" in "Count Performed on Instrument" field in the LIS and click Save. All of the hemocytometer related questions will automatically be reported as "N/A- Automated count performed".

4. Enter instrument results in the "Total Nucleated Cells (Instrument)" result field in the LIS.

    - The Body Fluid TNC is resulted in u/L

    - Convert the WBC/TNC to manual reporting units by moving the decimal point 3 places to the right. For example a WBC=0.30 x 10^3 needs to be converted to the manual result of 300 u/L.

5. Results less than 0.20 x 10^3 must have a manual hemocytometer count performed.

6. Results do not cross interface. Results will show up as "unknown" in Remisol.

LIMITATIONS/INTERFERENCES

- Risk of erroneous results can occur if Body Fluid samples are not run in the manual Body Fluid mode.
- Specimens not properly collected, stored, transported, or tested within stability limits may lead to erroneous or misleading results.
- Cellular debris, improper mixing, cellular interference, and clotted specimens may lead to erroneous or misleading results.
- Synovial fluids with fat globules, crystals, or high viscosity may lead to erroneous or misleading results.

REFERENCES

COULTER® LH Series Workstation, Body Fluid Application, Operator's Guide. 2D3.123341 Copyright 2007-2013