HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Laboratory and Blood Bank (Chemistry)		
Document:	Internal Policy and Procedure		
Title:	Analysis of Total Protein Level		
Applies To:	All Laboratory Staff		
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1. PURPOSE:

1.1 The purpose of this policy & procedure is to provide all information related to the analysis of total protein level in blood (serum/plasma) on DimensionEXL200, Synchron DXC700 and Atelica CI machines.

2. DEFINITONS:

N/A

3. POLICY:

3.1 This policy provides instructions for performing the quantitative determination of total protein in human serum or plasma on DimensionEXL200, Synchron DXC700 and Atelica CI machines..

3.2 It is a test used for quantitative determination of total protein in human serum and heparinized plasma it is used in the diagnosis and treatment of a variety of disease involving the liver, kidney or bone marrow as well as metabolic or nutritional disorders.

3.3 Serum or plasma TP level is increased in: dehydration and paraproteinemia.

3.4 Serum or plasma TP level is decreased in: Nephritic Syndrome, malnutrition, chronic liver disease, SLE, burn

4. PROCEDURE:

4.1 **Specimen:**

- 4.1.1 Type:
  - 4.1.1.1 Serum, or plasma
- 4.1.2 Tube Type:
  - 4.1.2.1 Gel tube, Plain tube; Li-Heparin
- 4.1.3 Amount Required:
  - 4.1.3.1 2.0 to 3.0 ml
- 4.1.4 Delivery Arrangements:
  - 4.1.4.1 Sample to be delivered to the lab as soon as possible. If the sample is serum should be ensuring complete clot formation before centrifugation. Some specimens, especially those from patients receiving anticoagulant or thrombolytic therapy, may exhibit increased clotting time. If the specimen is centrifuged before a complete clot forms, the presence of fibrin may cause erroneous results.
- 4.1.5 Temperature Restrictions:
  - 4.1.5.1 At room temperature
- 4.1.6 Unacceptable Specimen:
  - 4.1.6.1 See sample rejection criteria policy
- 4.1.7 Specimen Retention:
  - 4.1.7.1 Period of retention: up to one week after separation of the sample.
  - 4.1.7.2 storage condition: store at 2-8 ^{0}C

4.1.8 Safety Precaution:

4.1.8.1 Treat all samples material as infectious and handled in accordance with the OHSA standard on blood borne pathogens.

4.2 **Principle:**

4.2.1 protein + Cu2+ -------- alkaline solution (OH-) -protein complex

4.2.2 Sodium potassium tartrate prevents the precipitation of copper hydroxide and potassium iodide prevents auto reduction of copper. The colour intensity is directly proportional to the protein concentration which can be determined photo metrically.

4.3 **Method:**

4.3.1 See policy of loading sample on machine (Ref: Operative Manuals' of DimensionEXL200, Synchron DXC700 and Atelica CI machines..).

4.4 **Calculation:**

4.4.1 Instrument system automatically calculates the Analytic activity and gives results in the form of printout

4.5 **Format:**

4.5.1 numeric

4.6 **Status:**

4.6.1 Stat and Routine

4.7 **Reference ranges:**

4.7.1 Serum/plasma g/L

4.8 **Dilution information:**

4.8.1 Specimens with values exceeding the linearity range are flagged and may be diluted with automatic dilution either automated or manual dilution. Manual Dilution should be performed as follows:

4.8.1.1 Use saline (0.85% to 0.90%) to dilute the sample

4.8.1.2 The operator must enter the dilution factor in the patient order screen. The system dilution factor to automatically correct the concentration by multiplying the result by factor.

4.8.1.3 If the operator does not enter the dilution factor, the result must be multiplied appropriate dilution factor before reporting the result.

4.8.1.4 If a diluted sample result generates a Linear Low (LL) result error code. do result. Prepare an appropriate dilution/concentration and rerun.

4.9 **Linearity:**

4.9.1 Leaner up to 120 g/L

4.10 **Limit of Detection:**

4.10.1 The Limit of Detection is 20 g/L

5. MATERIALS AND EQUIPMENT:

5.1 **Reagent:**

5.1.1 Refer to reagent leaflet of DimensionEXL200, Synchron DXC700 and Atelica CI machines.

5..2 **Reagent retention:**

5.2.1 Dimension: The unopened reagents are stable until the expiration date when stored at 2-8°C. Reagent stability is 30 days if the reagent is unopened and for 5 days if the reagent is opened properly

5.2.2 Synchron : CHOL reagent when stored unopened at +2°C to +8°C will obtain the shelf-life indicated on the cartridge label. Once opened, the reagent is stable for 30 days at +2°C to +8°C unless the expiration date is exceeded. DO NOT FREEZE.

5.3 **Calibration:** refer to company leaflet of DimensionEXL200, Synchron DXC700 and Atelica CI machines.

5.4 **Quality control:**

5.4.1 Normal and pathological control. one time in 24 hours If more frequent control monitoring is

required, the established quality control procedures is followed If quality control results do not fall within an acceptable range defined by laboratory, patient be affected and corrective action should be taken

5.4.2 Quality Control retention, procedure and QC Expected Values refer to company leaflet of DimensionEXL200, Synchron DXC700 and Atelica CI machines.

6. RESPONSIBILITIES:

6.1 Chemistry shift on charge is responsible for, running calibration and control and samples of total protein

6.2 Chemistry staff are responsible for running total protein samples all over the day

7. APPENDICES:

N/A

8. REFERENCES:

8.1 Tietz Text Book of clinical chemistry and molecular diagnostics 4th Edition,2006

8.2 Company Leaflets of reagents

9. APPROVALS:

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