

TOTAL IRON-BINDING CAPACITY

PRECIPITATION WITH MAGNESIUM CARBONATE

Principle:

Excess ferric iron is added to the specimen to saturate the transferrin. Remaining ferric iron is furtherly absorbed by MgCO₃. Bound iron in the supernatant is what has been named TIBC (Total Iron Binding Capacity), assayed in the same manner as in iron determination.

Reagent Concentration:

Iron solution:

Iron 500µg/100ml
(=89.5µmol/l)

Magnesium carbonate powder:

Basic magnesium carbonate 40 g

Preparation and Stability of Solutions:

All reagents are ready to use.

When kept at room temperature, the components of this kit will remain stable until the expiration date stated on the label.

Samples:

Serum free of hemolysis.

If sample is to be assayed after 8 hours, store at +2 to +8 degrees C. Should the analysis be carried out after 24 hours, freeze sample. Specimen should not contain any iron chelating agent.

Procedure:

| | |
|---------|---------|
| Serum | 1000 µl |
| Reagent | 2000 µl |

Mix well and let stand for 10 minutes at room temperature

| | |
|------------|------------------------------------|
| Reagent/R2 | 2 spoonfull (approx. 300 – 350 mg) |
|------------|------------------------------------|

Cover with common plastic film and shake vigorously for 15 to 20 seconds.

Let stand for 30 minutes with occasional shakings (4-5 times) during this period. Centrifuge for 10 minutes at approx. 3000 rpm. Decant the supernatant.

The supernatant can be stored for up to one hour.

Calculation:

1.) **Total iron binding capacity (TIBC)**

Iron concentration in the supernatant (µg/100ml) x 3
(Dilution factor) = Serum TIBC (µg/100ml)

2.) **Unsaturated iron binding capacity (UIBC)**

TIBC (µg/100ml) - Serum iron (µg/100ml) = UIBC (µg/100 ml)

3.) **Siderophilin or Transferrin**

Assuming 1 mg of Transferrin may bind 1.2 ug of iron as a maximum, very approximate values can be obtained by using the following expression:

TIBC (µg/100ml):1.2 = Transferrin (mg/100ml)

Normal Values:

| | |
|-------------|--------------------|
| TIBC | 250 – 400 µg/100ml |
| UIBC | 160 – 280 µg/100ml |
| Transferrin | 210 – 360 mg/100ml |

Notes:

The supernatant used in the determination of iron-binding capacity must be absolutely clear. Otherwise it must be decanted and centrifuged again. Use only a swinging-head centrifuge, not an angle-head centrifuge.

Quality Control:

For accuracy and reproducibility control:-

Assayed Multi-Sera Normal and Elevated.

For reproducibility control:-

Multi-Sera Loaw, Normal and Elevated.

Presentation:

? TIB0271 100 tests

Buffer 2 x 125 ml.

Reagent 40g

Safety precautions:

For in vitro diagnostic use only. Do not pipette by mouth. Exercise the normal precautions required for handling laboratory reagents.

Health and Safety data sheets are available on request.

Literature:

Kunish, J.P. and Small, L.L., Clin. Chem., 16, 148-150 (1970)

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