



# TIBC-Total Iron Binding Capacity

Auxiliary reagents for the determination of  
Total Iron Binding Capacity (TIBC) in serum



## ORDER INFORMATION

**REF** **Kit size**  
GD0521 00 100 det.

## INDICATION

Iron is an essential element for a lot of metabolic process. It's homeostasis is regulated mainly by two proteins: transferrin, responsible for transportation of iron, and ferritin, responsible for the storage of iron.

TIBC (Total Iron Binding Capacity) measure the ability of serum to bind iron, so represent the maximum concentration of iron that the serum proteins can bind.

TIBC increased levels are found in late pregnancy, iron deficiency anemia, after acute hemorrhage or destruction of liver cells. Decreased levels are present in case of infection, neoplasia, uremia, nephrosis.

## METHOD PRINCIPLE

TIBC is assayed by saturating the sample with a solution at very high concentration of iron; the excess of iron is removed by absorption on magnesium carbonate powder and the iron is assayed on the supernatant.

TIBC value is expressed as  $\mu\text{g}$  of iron/100 ml of serum.

The difference between TIBC value and serum Iron gives the concentration of unsaturated Transferrin (or UIBC).

## COMPOSITION

**REAGENT C:** 1x3 ml (liquid)  
Iron saturating solution

**REAGENT D:** 10 g (powder)  
Magnesium carbonate

**Measuring cup** n° 1

## Preparation

Reagents are ready to use.

## Storage and stability

Store at room temperature (15-25 °C). Do not freeze the reagents! The reagents are stable up to the expiry date stated on the label if contamination and evaporation are avoided, protected from light.

The above conditions are valid if the vials are opened just only for the time to take the reagent, closed immediately with their cap and stored at the indicated conservation temperature

## ANCILLARY EQUIPMENT

- Automatic pipettes
- Conical bottom tubes
- Vortex
- Photometer
- Analysis cuvettes (optical path = 1 cm)
- NaCl solution 9 g/l
- Kit for iron determination:
  - REF GA4886 00 - KL4886 00 - BK4886 00, IRON FERENE
  - REF GD0520 00, IRON CROMAZUROL

## SAMPLES

Serum, stable 3 days at 2-8 °C.

## Specimen collection / Preanalytical factors

It is recommended that specimen collection should be carried out in accordance with NCCLS Document H11-A3.

## INTERNAL QUALITY CONTROL

It is recommended to use controls with known TIBC value. Check that the values obtained are within the reference range provided.

## SERUM SATURATION PROCEDURE

1. Allow the reagents to reach working temperature before using.
2. Pipette into well clean conical bottom tubes 500  $\mu\text{l}$  of serum and 10  $\mu\text{l}$  of Reagent C.
3. Mix and leave at room temperature (20-25 °C) for 10 minutes.
4. Add a measuring cup (~10 mg) of Reagent D and leave at room temperature (20-25 °C) for 10 minutes, shaking at regular intervals (4 times on Vortex for 10-15 seconds).
5. Centrifuge until obtaining a clear supernatant.
6. Recover the supernatant for the Iron determination according to the procedure described in the iron kit package insert.

## REFERENCE VALUES

250 ÷ 400  $\mu\text{g}/\text{dl}$

Each laboratory should establish reference ranges for its own patients population.

## ANALYTICAL PERFORMANCES

Refer to what reported in the iron kit package insert.

## PRECAUTIONS IN USE

The reagents contain inactive components such as preservatives (Sodium azide or others), surfactants etc. The total concentration of these components is lower than the limits reported by 67/548/EEC and 88/379/EEC directives about classification, packaging and labelling of dangerous substances. However, the reagents should be handled with caution, avoiding swallowing and contact with skin, eyes and mucous membranes. The use of laboratory reagents according to good laboratory practice is recommended.

As the method has a high sensitivity **only use material with absolutely no traces of Iron** (tubes, cuvettes, pipettes...).

## Waste Management

Please refer to local legal requirements.

## BIBLIOGRAPHY

1. CARTA, M., "Le proteine del metabolismo del ferro". Riv Med Lab - JLM, Vol 4, N. 1, 2003.
2. NCCLS Document, "Procedures for the collection of arterial blood specimens", Appr. Std., 3rd Ed. (1999).
3. EU-Dir 1999/11 Commission Directive of 8 March 1999 adapting to technical progress the principles of good laboratory practice as specified in Council Directive 87/18/EEC.