Tranferrin at CE

Transferrin

Turbidimetric method

REF 3168010
1 x 50 mL
CONTENTS
R1.Reagent 1 x 50 mL

For *in vitro* diagnostic use only

PRINCIPLE

Transferrin at is a quantitative turbidimetric assay[1,2] for the measurement of transferrin (TRF) in human serum or plasma.
Anti-human TRF antibodies form insoluble complexes when mixed with samples containing TRF. The scattering light of the immunocomplexes depends of the TRF concentration in the patient sample, and can be quantified by comparison from a calibrator of known TRF concentration.

REAGENTS COMPOSITION

R1 **Transferrin at**. Goat antibodies anti-human TRF, tris buffer 20 mmol/L, pH 8.2. Sodium azide 0.95 g/L.

Plasma Protein Multicalibrator. Protein Calibrator. Optional . Ref: 3910005.

Precautions: The reagent contains sodium azide 0.95 g/L. Avoid any contact with skin or mucous.

STORAGE AND STABILITY

1. Store at 2-8ºC.
   The reagent is stable until the expiry date stated on the label, when stored tightly closed at 2-8ºC and contaminations are prevented during their use. Does not use the reagent after the expiry date.
2. Presence of particles, turbidity and/or the absorbance of blank reagent > 0.3 at 540 nm are sign of deterioration.

REAGENT PREPARATION

R1 Ready to use.

Calibration curve. Dilute the Plasma Protein Calibrator in NaCl 9 g/L as follow:

Dilution	1	2	3	4	5	6
Calibrator (µL)	--	10	25	50	75	100
NaCl 9 g/L (µL)	100	90	75	50	25	--
Factor	0	0.1	0.25	0.5	0.75	1.0

Multiply the concentration of the TRF Protein Calibrator by the corresponding factor to obtain the TRF concentration of each dilution.

SAMPLES

Fresh serum and EDTA or heparinized plasma.
TRF in serum or plasma is stable 7 days at 2-8ºC or 3 months at –20ºC.
Samples with presence of fibrin should be centrifuged before testing. Highly hemolyzed or lipemic samples are not suitable for testing.

INTERFERENCES

Bilirubin (40 mg/dL), hemoglobin (8 g/L) and rheumatoid factors (200 UI/mL) do not interfere. Lipemia (2.5 g/L) may affect the results. Other substances may interfere[5].

MATERIAL REQUIRED

- Thermostatic bath at 37ºC.
- Spectrophotometer or photometer thermostatable at 37ºC capable to read at 540 ± 20 nm.
- Cuvettes with 1cm pathlength.
- Pipettes to measure reagent and samples.

PROCEDURE

1. Prewarm the reagent and the photometer (cuvette holder) to 37ºC.
2. Using distilled water zero the instrument at 540 nm.
3. Pipette into a cuvette:

Sample / Calibrator	10 µL
Reagent (R1)	1.0 mL

4. Mix well and insert the cuvette into the photometer. Record the absorbance (A) after 2 minutes of the sample or calibrator addition.

CALCULATION

Plot the different absorbance values (A) against the TRF concentration of each calibrator dilution. TRF concentration in the sample is calculated by interpolation of its (A) value in the calibration curve.

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REFERENCE VALUES

Adults[3]: 200 – 360 mg/dL
Newborn[4]: 117 – 250 mg/dL
It is recommended that each laboratory establishes its own reference range.

QUALITY CONTROLS

To ensure adequate quality control (QC), each run should include a set of controls (normal and abnormal) with assayed values handled as unknowns.

REF **3915010 PLASMA PROTEIN CONTROL N-I**
Normal level. Assayed.

REF **3915015 PLASMA PROTEIN CONTROL N-II**
Abnormal level. Assayed.

Each laboratory should establish its own Quality Control scheme and corrective actions if controls do not meet the acceptable tolerances.

CLINICAL SIGNIFICANCE

Transferrin is the principal plasma protein for the transport of iron. It is synthesized in the liver and transfers iron through the serum. The TRF molecule specifically binds to the Fe^{3+} forming the TRF-Fe^{3+}, that goes through the plasma and carries iron to storage sites in the body.

Evaluation of plasma TRF levels is useful for the differential diagnosis of anemia, for monitoring its treatment and for assessing the nutritional status of a patient.

TRF level rises in the hypochromic anemia (iron deficiency), in pregnancy and during estrogen administration .

Low levels of TRF occurs in inflammation and malignancy.

ANALYTICAL PERFORMANCE

- ***Linearity limit.*** Up to 800 mg/dL, under the described assay conditions. Samples with higher concentrations should be diluted 1/5 en ClNa 9 g/L and retested again.
- ***Detection limit.*** Values less than 1.6 mg/dL give non-reproducible results.
- ***Analytical sensitivity.*** Using this reagent and method an ΔA of 1.27 mA at 540 nm is equivalent to 1 mg/dL of TRF at a concentration of 407 mg/dL.
- ***Prozone effect.*** Prozone effect is not observed up to 1500 mg/dL of TRF.
- ***Precision.***

mg/dL	Within-run		Between-run	
Mean	158	322	158	322
SD	5.5	14.1	7.6	20.5
CV%	3.5	4.8	4.4	6.4
N	10	10	10	10

Instrument: Cobas Mira

- ***Accuracy:*** Results obtained with this reagent did not show systematic differences when compared with commercial reagents of similar characteristics. Details of comparison are available on request.

NOTES

1. This method may be used with different instruments. Any application to an instrument should be validated to demonstrate that results meet the performance characteristics of the method. It is recommended to validate periodically the instrument. Contact to the distributor for any question on the application method.
2. The linearity limit depends on the sample/reagent ratio, as well as the analyzer used. It will be higher by decreasing the sample volume, although the sensitivity of the test will be proportionally decreased.
3. Clinical diagnosis should not be made on findings of a single test result, but should integrate both clinical and laboratory data.

REFERENCES

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