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CE IVD

EN

INSTRUCTIONS FOR USE

Reagents for professional use,
for *In Vitro* use only in clinical laboratory (IVD)

3diag - sTfR - TIA

Soluble Transferrin Receptor
for Turbidimetry
REF TD-42691

INTENDED USE

Quantitative determination of Soluble Transferrin Receptor (sTfR), in human serum, by turbidimetric method in automatic Clinical Chemistry Analyzers.

PRINCIPLE OF THE METHOD

The specific antibodies (Ab) of the reagent, bound to polystyrene particles, when combined with the antigens (Ag) of the patient sample, form insoluble compounds causing a change in the absorbance and dispersion of the light, proportional to the antigen concentration, which can be quantified by turbidimetric (TIA) or nephelometric (NIA) method, by comparison with calibrators of known concentration.

CONTENTS - COMPOSITION - PREPARATION

- Antiserum Reagent: REAG | Ab | sTfR
  REF TD-42691-RA ▽ 100 test - 5.5 ml
  Anti-human sTfR antibodies, bound to polystyrene particles.
- Reaction Buffer: BUF | sTfR
  REF TD-42691-BF ▽ 100 test - 22 ml
  TRIS Buffer, with PEG.

The reagents are ready for use and require no preparation.
Before each use it is convenient that the reagents are homogenized, shaking them gently avoiding the formation of foam or bubbles.
As a preservative, the reagents contain <0.1% (1 g/l) Sodium Azide (NaN_3).

WARNINGS - PRECAUTIONS

- Sodium Azide is toxic. Even if sodium azide is not harmful at the concentration present in the reagents, take the necessary precautions to avoid accidental ingestion or contact with the eyes.
- Sodium Azide can react with lead or copper to give explosive compounds. For disposal it is recommended to rinse with plenty of running water to avoid accumulation in drains.
- Since the absence of infectious agents can not be proven with absolute certainty, components containing materials of human or animal origin must be handled with caution, as potentially infectious, following the recommended safety standards for biological risk.
- Do not mix components belonging to different lot kits.
- Clinical diagnosis should not be based on the results of a single test, but should always integrate all relevant clinical and laboratory data.

STORAGE - SHELF LIFE

- Store refrigerated at +2...+8ºC. Do not freeze, as the functionality of the reagents may be altered.
- Properly stored and unopened, the reagents are stable until the expiration date indicated on the label.
- Once opened, the shelf life of the reagents is at least 4 weeks, provided that after each use they are stored immediately in the original containers, tightly capped and refrigerated at +2...+8ºC. This information should be taken as a guideline given that, obviously, the shelf life depends on the particular environmental and use conditions, which may differ from those of the stability studies carried out.

MATERIALS NEEDED, NOT SUPPLIED

- Automatic Clinical Chemistry Analyzer, capable of running photometric assays at 540...600 nm, and accessories: reagent containers, cuvettes, etc..
- 3diag - sTfR - CAL SET — REF TD-42682
- 3diag - sTfR - CAL — REF TD-42692
- 3diag - sTfR - CONTROL — REF TD-42683

SAMPLES

Fresh Serum.
Samples with presence of fibrin should be centrifuged.
Do not use hemolyzed, lipemic or contaminated samples.
In bibliography[1] it is reported the following stability in serum:

- Refrigerated: 7 days
- Freezed: 90 days

PROCEDURE

If necessary, carefully transfer the reagents to the containers used by the analyzer, preventing leakage and foaming or bubbles.
To program and calibrate assays, follow the instructions for use of the analyzer used, with the recommended general parameters that are detailed below. Please, contact the Customer Support Service (✉ support@3diag.com - ☎ +34 93 244 86 79) for further information about applications to specific analyzers.

Assay Parameters

- ①Dispense and mix:
  - Sample/Control: 7 µl (diluted 1:5)
  - Calibrator: 7 µl (neat)
  - BUF | sTfR 200 µl
- ②Incubate a fixed time between 1 and 5 minutes
- ③Dispense and mix:
  - REAG | Ab | sTfR 50 µl
- ④Read absorbance A1 (Blank) at 540...600 nm
- ⑤Incubate a fixed time of about 5 minutes
- ⑥Read absorbance A2 (Final Point) at 540...600 nm
- ⑦Interpolate the absorbance increment (A2-A1) of the samples and controls in the curve obtained with the calibrators
- ⑧Samples with concentrations higher than the upper limit of the assay range should be analyzed again, diluted manually with Physiological Solution, or by programming a larger sample dilution in the analyzer, to recover a value close to the midpoint of the measurement range.

As an alternative, reagents can be mixed as first step, and the sample dispensed as starter.

Calibration Parameters

- Use the 3diag - sTfR - CAL SET or, if using the 3diag - sTfR - CAL program in the analyzer or prepare the following dilutions: 1:1, 3:4, 1:2, 1:4, 1:8 and 1:16 (100, 75, 50, 25, 12.5 and 6.25 %).
- It is recommended to use Physiological Solution as diluent.
- If the analyzer allows it, it is recommended to program two replicates of each calibration point.
- The calibrations are Non-linear. For the calculation it is recommended to use a 3rd Order Polynomial, a Logit or a Polygonal adjustment.

The assay must be recalibrated, at least when a new batch of reagents is used or when its parameterization is changed.

PERFORMANCES OF THE METHOD

Detailed information on the characteristics and performances of the assay is given in the Technical Report, available on the website (www.3diag.com) or upon request to the Customer Support Service (✉ support@3diag.com - ☎ +34 93 244 86 79).

QUALITY CONTROL

To monitor performances, it is recommended that internal controls be inserted into each analytical series. It is recommended to use the controls of the **3diag - sTfR - CONTROL**.

In some analyzers, in order to process the controls, it may be necessary to deactivate the clot detection system.

Each laboratory should establish its own quality scheme and corrective actions if controls do not meet the assigned tolerances.

The reagents have been subjected to quality control checks and should react as described in these instructions. Therefore, as a general recommendation, in case the controls do not give the expected reaction, as a precaution all reagents should be considered unreliable until their operation has been checked.

TRACEABILITY

Values are referred to the *Reference Reagent Recombinant Soluble Transferrin Receptor (rsTfR)* (code: 07/202) of the *WHO* (*World Health Organization*), and apply to free rsTfR monomer[(2)].

REFERENCE INTERVALS

It is always advisable for each laboratory to establish its own reference values.

The bibliography[(3)] reports reference values between 10.6 and 24.6 nmol/l, equivalent to 0.76 and 1.76 mg/l.

CLINICAL SIGNIFICANCE

sTfR is a good marker in the diagnosis of iron deficiency. sTfR enables evaluation of erythropoiesis without the need for cytological study of the bone marrow, as long as iron deficiency is excluded. Thus, it is helpful in managing response to erythropoietin treatment (EPO), and it has also been proposed for use in anti-doping control.

The concentration of sTfR increases significantly and at an early stage in patients suffering from iron deficiency. Because it does not act as an acute phase reactant, it is especially helpful in the differential diagnosis of iron-deficiency anaemia and secondary anaemia from chronic disorders (not caused by cancer) in the presence of acute or inflammatory conditions (commonly seen in elderly patients for example) which affect Ferritin measurements. Reports suggest that the sTfR/Log(Ft) ratio results in higher sensitivity and specificity of differentiation with respect to the individual magnitudes.

In its compilation of recommendations[(4)], the *World Health Organization* (*WHO*) concludes that sTfR levels, combined with measurements of serum ferritin concentrations, provide the most effective assessment of a population's iron status.

SYMBOLS

In addition to the harmonized symbols provided on the European Standard EN 980:2008, in the labels and instructions of use has been used the complementary symbology proposed[(4)] by the *EDMA* (*European Diagnostic Manufacturers Association*), whose meaning is detailed below.

REAG	Reagent
Ab	Antibody / Antiserum
BUF	Buffer
sTfR	Soluble Transferrin Receptor

BIBLIOGRAPHY

(1) *Mayo Medical Laboratories* (www.mayomedicallaboratories.com) website, date of consultation: 30th May 2017.

(2) For further information visit *NIBSC* (*National Institute for Biological Standards and Control*) website: www.nibsc.org.

(3) *Quest Diagnostics™* website (www.questdiagnostics.com), date of consultation: 17th June 2017.

(4) "Serum transferrin receptor levels for the assessment of iron status and iron deficiency in populations. Vitamin and Mineral Nutrition Information System." Geneva: *World Health Organization*; 2014 (WHO/NMH/NHD/MNM/14.6; http://apps.who.int/iris/bitstream/10665/133707/1/WHO_NMH_NHD_EPG_14.6_eng.pdf?ua=1), date of consultation: 30th September 2019.

(5) EDMA Labelling Task Force: "*EDMA Symbols for IVD Reagents and Components - Revision, October 2009*".

TEXT REVISION DATE

13th November 2019.

Modifications highlighted in blue.

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INSTRUCTIONS FOR USE

Reagents for professional use,
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3diag - sTfR - CAL SET

Soluble Transferrin Receptor
Calibrators (6 lev.)
REF **TD-42682**
(Producto included in REF TD-42680)

INTENDED USE

Elaboration of the calibration curve for the quantitative determination of Soluble Transferrin Receptor (sTfR), in human serum, by immunochemical methods.

PRINCIPLE OF THE METHOD

The specific antibodies (Ab) of the reagent, bound to polystyrene particles, when combined with the antigens (Ag) of the patient sample, form insoluble compounds causing a change in the absorbance and dispersion of the light, proportional to the antigen concentration, which can be quantified by turbidimetric (TIA) or nephelometric (NIA) method, by comparison with calibrators of known concentration.

CONTENTS - COMPOSITION - PREPARATION

- Calibrator Level 1: CAL 1 sTfR
  REF TD-42682-1 CONT 1 ml
- Calibrator Level 2: CAL 2 sTfR
  REF TD-42682-2 CONT 1 ml
- Calibrator Level 3: CAL 3 sTfR
  REF TD-42682-3 CONT 1 ml
- Calibrator Level 4: CAL 4 sTfR
  REF TD-42682-4 CONT 1 ml
- Calibrator Level 5: CAL 5 sTfR
  REF TD-42682-5 CONT 1 ml
- Calibrator Level 6: CAL 6 sTfR
  REF TD-42682-6 CONT 1 ml

The calibrators are human serum solutions, delipidated, filtered by 0.2 µm.

As preservatives, the calibrators contain <0.1% (1 g/l) Sodium Azide (NaN_3), <0.02% (0.2 g/l) Methylisothiazolone and <0.02% (0.2 g/l) Bromonitrodioxane.

The calibrators are ready for use and require no preparation.

Before each use it is convenient that the calibrators are homogenized, shaking them gently avoiding the formation of foam.

The values of the calibrators are lot dependent and are indicated in the table of values of their Instructions for Use.

For the *Siemens Healthcare*'s analyzers of the *ADVIA® Chemistry Systems* series (*ADVIA® and its associated brands are registered trademarks of Siemens Healthcare*), the values to be entered in the analyzer must be the concentrations detailed in the table of values multiplied by 4 (factor between the dilution of the calibrators and the samples).

WARNINGS - PRECAUTIONS

- Sodium Azide is toxic. Even if at the concentrations present neither Sodium Azide nor the other preservatives are harmful, take the necessary precautions to avoid accidental ingestion or contact with the eyes.
- Sodium Azide can react with lead or copper to give explosive compounds. For disposal it is recommended to rinse with plenty of running water to avoid accumulation in drains.
- Materials of human origin have been tested and found negative for the presence of HBsAg, HCV, and anti-HIV 1 and 2 antibodies.
- Since the absence of infectious agents can not be proven with absolute certainty, components containing materials of human or animal origin must be handled with caution, as potentially infectious, following the recommended safety standards for biological risk.
- Do not mix components belonging to different lot kits.
- Clinical diagnosis should not be based on the results of a single test, but should always integrate all relevant clinical and laboratory data.

STORAGE - SHELF LIFE

- Store refrigerated at +2...+8ºC. Do not freeze, as the functionality of the calibrators may be altered.
- Properly stored and unopened, the calibrators are stable until the expiration date indicated on the label.
- Once opened, the shelf life of the calibrators is at least 4 weeks, provided that after each use they are stored immediately in the original containers, tightly capped and refrigerated at +2...+8ºC. This information should be taken as a guideline given that, obviously, the shelf life depends on the particular environmental and use conditions, which may differ from those of the stability studies carried out.

MATERIALS NEEDED, NOT SUPPLIED

The calibrators are intended to be used in conjunction with the Reagents and Controls:

- 3diag - sTfR - 800 REF TD-42681
- 3diag - sTfR - TIA REF TD-42691
- 3diag - sTfR - ADV REF TD-42695
- 3diag - sTfR - ADV (5) REF TD-42696
- 3diag - sTfR - CONTROL REF TD-42683

PROCEDURE

Follow the Instructions for Use of the analyzer used to program and calibrate assays, with the general parameters recommended in the Instructions for Use of the Reagents.

For the analyzers of the *ADVIA® Chemistry Systems* series, discard the lowest value calibrator (level 1) of the Set, and replace it with Physiological Solution to perform the analyzer's Reagent Blank (zero concentration point).

TRACEABILITY

Values are referred to the *Reference Reagent Recombinant Soluble Transferrin Receptor (rsTfR)* (*NIBSC* code: 07/202) of the *WHO* (*World Health Organization*), as monomers of free rsTfR[(1)].

SYMBOLS

In addition to the harmonized symbols provided on the European Standard EN 980:2008, in the labels and instructions of use has been used the complementary symbology proposed[(2)] by the *EDMA* (*European Diagnostic Manufacturers Association*), whose meaning is detailed below.

CAL	Calibrator
n	Level n (n=1..6)
sTfR	Soluble Transferrin Receptor
CONT	Contents

BIBLIOGRAPHY

(1) For more information visit the *NIBSC* website (*National Institute for Biological Standards and Control*): www.nibsc.org.
(2) EDMA Labelling Task Force: "*EDMA Symbols for IVD Reagents and Components - Revision, October 2009*".

TEXT REVISION DATE

19th March 2020.

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INSTRUCTIONS FOR USE

Reagents for professional use,
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3diag - sTfR - CONTROL

Soluble Transferrin Receptor
Controls (2 lev.)
REF **TD-42683**
(Product included in REF TD-42694)

INTENDED USE

Internal controls, with assigned values, for the quantitative determination of Soluble Transferrin Receptor (sTfR), in human serum, by immunochemical methods.

PRINCIPLE OF THE METHOD

The specific antibodies (Ab) of the reagent, bound to polystyrene particles, when combined with the antigens (Ag) of the patient sample, form insoluble compounds causing a change in the absorbance and dispersion of the light, proportional to the antigen concentration, which can be quantified by turbidimetric (TIA) or nephelometric (NIA) method, by comparison with calibrators of known concentration.

CONTENTS - COMPOSITION - PREPARATION

- High Control: CONTROL | H | sTfR
  REF TD-42683-H — CONT 1 ml
- Low Control: CONTROL | L | sTfR
  REF TD-42683-L — CONT 1 ml

The controls are human serum solutions, delipidated, filtered by 0.2 µm.
As preservatives, the controls contain <0.1% (1 g/l) Sodium Azide.
The controls are ready for use and require no preparation.
Before each use it is convenient that the controls are homogenized, shaking them gently avoiding the formation of foam or bubbles
The values of the controls are lot dependent and are indicated in the table of values of their Instructions for Use.

WARNINGS - PRECAUTIONS

- Sodium Azide is toxic. Even if at the concentration present Sodium Azide is not harmful, take the necessary precautions to avoid accidental ingestion or contact with the eyes.
- Sodium Azide can react with lead or copper to give explosive compounds. For disposal it is recommended to rinse with plenty of running water to avoid accumulation in drains.
- Materials of human origin have been tested and found negative for the presence of HBsAg, HCV, and anti-HIV 1 and 2 antibodies.
- Since the absence of infectious agents can not be proven with absolute certainty, components containing materials of human or animal origin must be handled with caution, as potentially infectious, following the recommended safety standards for biological risk.
- Do not mix components belonging to different lot kits.
- Clinical diagnosis should not be based on the results of a single test, but should always integrate all relevant clinical and laboratory data.

STORAGE - SHELF LIFE

- Store refrigerated at +2...+8ºC. Do not freeze, as the functionality of the controls may be altered.
- Properly stored and unopened, the controls are stable until the expiration date indicated on the label.
- Once opened, the shelf life of the controls is at least 4 weeks, provided that after each use they are stored immediately in the original containers, tightly capped and refrigerated at +2...+8ºC. This information should be taken as a guideline given that, obviously, the shelf life depends on the particular environmental and use conditions, which may differ from those of the stability studies carried out.

MATERIALS NEEDED, NOT SUPPLIED

The controls are intended to be used in conjunction with the Reagents and Calibrators:

3diag - sTfR - TIA	REF TD-42691
3diag - sTfR - ADV	REF TD-42695
3diag - sTfR - ADV (5)	REF TD-42696
3diag - sTfR - CAL SET	REF TD-42682
3diag - sTfR - CAL	REF TD-42692

PROCEDURE

Follow the Instructions for Use of the analyzer used to program and calibrate an assay, with the general parameters recommended in the Instructions for Use of the Reagents.
In the analyzers of the *ADVIA® Chemistry Systems* series from *Siemens Healthcare* (*ADVIA®* and its associated brands are registered trademarks of *Siemens Healthcare*), to process the controls it is necessary to deactivate, for calibrators and controls, the analyzer's clot detection system. It may also be necessary to deactivate the clot detection system in other analyzers.

TRACEABILITY

Values are referred to the *Reference Reagent Recombinant Soluble Transferrin Receptor (rsTfR)* (*NIBSC* code: 07/202) of the *WHO* (*World Health Organization*), as monomers of free rsTfR[(1)].

(1) For more information visit the *NIBSC* website (*National Institute for Biological Standards and Control*): www.nibsc.org.

SYMBOLS

In addition to the harmonized symbols provided on the European Standard EN 980:2008, in the labels and instructions of use has been used the complementary symbology proposed[(2)] by the *EDMA* (*European Diagnostic Manufacturers Association*), whose meaning is detailed below.

(2) EDMA Labelling Task Force: "*EDMA Symbols for IVD Reagents and Components - Revision, October 2009*".

CONTROL	Control
H	High
L	Low
sTfR	Soluble Transferrin Receptor
CONT	Contents

TEXT REVISION DATE

30th June 2023.