1/ INTENDED USE
The STA®-NeoPTimal kit provides thromboplastin reagents from rabbit brain extract, for the quantitative determination, in human citrated plasma (3.2% sodium citrate), of prothrombin time (PT) on STA®-R® family, STA Compact® family and STA Satellite® family instruments. STA®-NeoPTimal is a coagulation screening test intended to be used by professional laboratory personnel for the evaluation of the extrinsic coagulation pathway and the monitoring of oral vitamin K antagonist therapy using the International Normalized Ratio (INR).

2/ SUMMARY AND EXPLANATION
The prothrombin time is a coagulation screening test.

• A prolonged PT is obtained in certain disease situations such as:— deficiencies of factor II, V, VII, X or fibrinogen (3, 4); — liver cirrhosis (cirrhosis of the liver) (5); — treatments with vitamin K antagonists (VKA) (5); — DIC (6, 7); — PT is also used for INR calculation in patients receiving vitamin K antagonists therapy (8, 9). The INR value corresponds to the value of the ratio of the patient's PT to the standard PT to be determined by the IS (International Sensitivity Index) of the thromboplastin used.

The ISI value for the thromboplastin is determined by testing normal plasma and VKA-treated patient plasma with that thromboplastin and with the International Reference Preparation for thromboplastin (2).

8/ TEST PRINCIPLE
The principle of the test consists of the use of calcium thromboplastin to measure the clotting time of the patient's plasma sample to compare it with that of a normal standard.

The test measures, as a whole, the activity of the coagulation factors II (prothrombin), V, VII, VIII, X, and XI (factor XI), II (factor II) and factor X (factor X) (Stuart factor) and factor II (Factor II). [1] [2]

4/ REAGENT KIT
An Assay Value insert with a barcode is provided in the box. This barcode contains the following information: lot number, numeric code, numeric reagent code number, expiration date, VWA code and calibration values for result in percentages.

Reagent 1: STA®-NeoPTimal, lyophilized thromboplastin prepared from rabbit brain extract. The ISI value of STA®-NeoPTimal, correlated with a secondary reference thromboplastin (the International Standard for the INR) (9, 10), is indicated on the Assay Value insert provided in the kit. The STA®-NeoPTimal reagents are STA®-R® family, STA Compact® family and STA Satellite® family.

Reagent 2: containing calcium, 5 ml, 10 ml or 20 ml per vial according to the packaging size.

Reagent 2 contains sodium chloride (0.1%) as a preservative. Reagents containing sodium chloride should be discarded with care to prevent the formation of explosive metallic azides. If waste materials are dumped into sinks, use copious quantities of water to flush通往 plumbing.

Reference: [1] [2]

Some reagents provided in these kits contain materials of human and/or animal origin. Whenever using these materials, personal hygiene should be observed. Results obtained with these reagents approved by the manufacturer are not necessarily generalizable to all patients. New reagents approved by the manufacturer are not necessarily interchangeable with reagents approved by the manufacturer. Therefore, among many of these reagents, some must execute extreme care in full compliance with safety procedures in the handling of these biological materials if they were infected.

2/ CAUTION
• Store at 2-8 °C. For in vitro diagnostic use only. These reagents are to be used only by certified medical laboratory personnel authorized by the laboratory.

In the U.S. Caution: Federal law restricts this device to sale by or on the order of a physician. Take care to mix Reagent 1 vials with Reagent 2 vials from the same lot. Read the Reference Manual of the analyzer model carefully before starting. Exercise great care in the handling of these reagents and of patient samples. The disposal of waste materials must be carried out according to current local legislation.

• The stirring-bar used in the reagent vial should never be the source of contamination. To ensure that stirring-bars are contamination-free, rinse the bars with distilled water and dry them carefully to remove all traces of moisture before use. After use, decontaminate stirring-bars once a week according to the following procedure:

  • Prime the bars in a vial of STA®-R® Desot U (REF 02975) and let them soak for 5 minutes with constant magnetic stirring;

  • use tweezers to transfer the bars from the STA®-R® Desot U vial to a vial of distilled water and let them soak for another 5 minutes with constant magnetic stirring; repeat this rinsing step with another vial of distilled water;
  • finally, remove the stirring-bars from the distilled water vial and dry them carefully to remove all traces of moisture.

5/ SPECIMEN COLLECTION AND TREATMENT
Sample collection must be in conformity with the recommendations for haemostasis tests.

• Blood (9 ml) is collected in 0.10 M NaCl (i.e., 3.2 %) trichloroacetic acid anticoagulant (1 vol.) (in the USA follow CLSI guidelines GP41-A12 and GP41-A23).

• Centrifugation: 15 minutes at 2000-2500 g.

• Plasma storage: 24 hours at 2-5 °C (14).

Do not store plasma at 2-8 °C (1).

7/ REAGENT PREPARATION AND STORAGE
• Preparation:
Transfer the entire contents of one vial of Reagent 2 (R2) into one vial of Reagent 1 (R1) of the same lot. Allow the reconstituted reagents to stand at room temperature (18-25 °C) for 30 minutes. Then, shake very vigorously 10 seconds the Reagent 1 vial to obtain a homogeneous suspension. Then, add a stirring-bar (REF 27425) to the vial (STA®-NeoPTimal 0, or 0), place a new STA®-R® Reducer (REF 02979 for STA®-R® family, STA Compact® family and STA Satellite®) into it and install the perforated cap (STA®-NeoPTimal 0 or 8).

• Storage:
The stirring-bars are intact until the expiration date indicated on the box label, when stored at 2-8 ºC. Once reconstituted, STA®-NeoPTimal 0 is stable:

  • with the stirring-bar, STA®-R®: Reducer and perforated cap in place;

  • 48 hours on STA®-R® and STA Compact® families;

  • 4 days on STA®-Satellite® family;

  • in its original capped vial (without the Reducer): 8 days; when stored at 2-8 °C;

Once reconstituted, STA®-NeoPTimal 0 is stable:

  • with the stirring-bar, STA®-R®: Reducer and perforated cap in place;

  • 48 hours on STA®-R® and STA Compact® families;

  • 4 days on STA®-Satellite® family.

9/ REAGENTS AND EQUIPMENT REQUIRED BUT NOT PROVIDED
• STA®-Owen-Koller (REF 00360).
• STA®-System Control (REF 00678), STA®-Coag Control (REF 00679), STA®-Anticoag Control (REF 00680), STA®-Anti Xa Control (REF 00681).
• STA®-R® or STA Compact® families (STA®-NeoPTimal 0 or 8).
• STA® Satellites® family (STA®-NeoPTimal 0 or 8).
• STA®-NeoPTimal Reduced (REF 27425) for STA®-NeoPTimal 0 or 8.

Common clinical laboratory equipment and materials.

Not available in the US.

9/ PROCEDURE
9.1. Calibration
The pre-calibrated PT values are available for all of the identifications.

To enter the calibration data on the analyzer, scan the barcode printed on the Assay Value insert across the instrument barcode reader. The calibration data will be valid for the lot being used since the two PT control levels have been determined.

The calibration curve for PT can be examined on the screen of the analyzer in the “Calibration” menu (see the Reference Manual).

9.2. Patients’ Plasma
Patients’ plasma are tested undiluted. They are loaded in the instrument (see the Reference Manual of the analyzer model). Then select the test(s) to be performed.

9.3. Quality Control
It is necessary to run controls in order to ensure accuracy and reproducibility of the results. Two different levels of control should be used: normal control and control reagents that contain in the barcode printed on their respective Assay Value insert to the instrument. They are used undiluted.

9.4. Assay
Refers to the “Standardized Operating Procedures” of the instrument for full details on how to proceed from this point.

The instrument starts the assay as soon as sample loading is completed.

10/ RESULTS
The PT value of the plasma being tested is displayed, in the unit selected by the operator (seconds, INR, %, ratio), in the “Test Panel/Test Status” section of the instrument’s display. The result is to be interpreted according to the patient’s clinical and biological status.

Ensure that the values obtained for the controls are within the ranges stated. Value insert values provided in the control boxes. If the control values are outside the stated ranges, check all components of the test system to ensure that all are functioning correctly i.e., assay conditions, reagents, integrity of the plasma being tested, etc. If necessary, repeat the tests.

11/ LIMITATIONS
• Sample
The “highest microaggregation (cro-microaggregations) will induce considerable shortening of the times measured (automatized activation of all of the coagulation factors) whereas extensive coagulation will prolong the clotting times because of consumption of factors and fibrinogen.

• Anticoagulants
Maintain the correct anticoagulant/blood sample volume ratio of 1:9. If the control levels have been determined. The calibration curve for PT can be examined on the screen of the analyzer in the “Calibration” menu (see the Reference Manual).

12/ REFERENCE INTERVAL
Normal values vary from one laboratory to the next, depending on reagents, instrumentation and technique. So, each laboratory must determine its own expected values based on technique and instrumentation in use. For example, 125 human plasma samples presumed normal have been tested with the STA®-R® family, STA Compact® and STA Satellites®. The mean PT defined according to the CLSI EP28-A30 (the 95 % confidence interval of the mean) is 13.5 ± 1.8 seconds.

13/ VITAMIN K ANTAGONIST THERAPY
• Vitamin K antagonists will depress plasma levels of factor II (prothrombin), VII, IX (Stuart factor) and X (antithrombin factor 8).

For the assessment of the vitamin K antagonist therapy, refer to the current recommendations.

14/ PERFORMANCE CHARACTERISTICS
Different samples were used for the repeatability and within-laboratory precision studies. Results obtained with STA®-R® family by STA®-R® family are shown in the table. Results obtained per according to the CLSI guideline EP05-A3 (17).

15/ METHOD COMPARISON
A study sample on 403 results has been carried out with the STA®-R® family. Results of this study are as follows: the 95 % slope, 1.0, y intercept = 0.01.