Instructions for Use

TPA Assay · REF 1021EU · UDI 59998629921021EU

Intended Purpose

The TPA is a ready-to-use reagent for in-vitro diagnostic professional use, intended for detection of tranexamic acid in citrated blood during viscoelastometry analysis.

CE IVD
Notified Body 2265

CAUTION: Use of this device outside its intended purpose may lead to test results being incorrectly interpreted by the user.

Indications for Use

Indicated when the presence of tranexamic acid in the patient's blood is suspected.

Contra-indications for Use

The TPA assay should not be used for patients that have been exposed to epsilon-amino-caproic acid or aprotinin, as these drugs could lead to false-positive results.

Intended Users

- Trained healthcare professionals
- Trained laboratory professionals

Intended Patient Population

Adult patients suspected to be exposed to tranexamic acid.

Principle of the Assay

The TPA is a functional whole-blood based assay for the detection of tranexamic acid on viscoelastometry analyzers. Coagulation is activated by recombinant tissue factor, calcium chloride, and polybrene (heparin antagonist). Fibrinolysis is simultaneously stimulated by a high dose of recombinant tissue plasminogen activator (TPA; equivalent to 650 ng/mL).

When no tranexamic acid is present, fibrinolysis is fast. When tranexamic acid is present, fibrinolysis is delayed or blocked. The effect is reflected by the lysis time (LT) — the time from CT until 50% maximum lysis (ML) is detected. When ML does not reach 50%, no LT is displayed.

Materials Provided

10 sealed single-use pouches, each containing one pipet tip with dry chemistry reagent (recombinant tissue factor, recombinant tissue plasminogen activator, polybrene, calcium chloride, buffer and stabilizers). Each pouch contains one desiccant bag.

Additional Materials and Devices Required

- Viscoelastometry analyzer and receptacles (Cups & Pins)
- Electronic pipette for 340 µL with 3-second aspiration/dispensing cycles
- Blood collection tube (3.2% sodium citrate)

Storage and Stability

Condition	Detail
Refrigerated (unopened)	Store at +2 to +8 °C. Stable until expiration date on pouch label.
Room temperature (unopened)	Unopened pouches may be stored at room temperature for up to 1 month.
After opening	For immediate use within 1 minute of opening the pouch.

CAUTION: Incorrect storage conditions may affect reagent stability and lead to wrong test results.

Warnings and Precautions

For professional use by trained personnel only.

CAUTION: Use outside the intended purpose may lead to incorrectly interpreted results.

CAUTION: Do not use tips from defective pouches or pouches missing the desiccant pack.

CAUTION: Single use only — do not reuse.

CAUTION: Any serious incident that has occurred as a result of the use of the device must be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

CAUTION: Failure to comply with these instructions for use may result in device handling errors leading to wrong test results.

CAUTION: Human blood samples should be handled with care, following general precautions recommended for bio-hazardous materials.

CAUTION: General precautions (e.g., wear gloves and minimise skin exposure to specimens and reagents) should be followed when handling all materials.

CAUTION: Incorrect storage conditions may affect reagent stability.

NOTE: Dispose of waste according to local regulations.

NOTE: A material safety data sheet (MSDS) is available upon request.

Residual Risks, Undesirable Side-Effects, and Information for the Patient

The following residual risks were identified during risk management activities for the device:

- In case of off-label use, test results may be incorrectly interpreted by the user.
- In case of device handling errors, patient coagulation may be incorrectly reflected.
- In case of use of an expired product, patient coagulation may be incorrectly reflected.
- In case of unacceptable transport and storage conditions, patient coagulation may be incorrectly reflected.

Sample Collection

CAUTION: Collect a venous blood sample according to recommended procedures using a blood collection tube with 3.2% sodium citrate. Samples should be analysed within 3 hours from blood collection. Store blood at room temperature. Always ensure blood collection tubes are filled to the indicated fill volume to avoid excessive citrate levels.

Test Procedure

1. Check the expiry date of the device.

   CAUTION: Do not use the expired product. Use of an expired product may lead to wrong test results.

2. Allow the reagent tip pouch to reach room temperature.
3. If the sample is cold (<22 °C), allow the sample to warm up for 5 minutes on the heated position of the viscoelastometry analyzer.
4. Create the test in the software of the viscoelastometry analyzer according to the analyzer manual.
5. Place the Cup and Pin into the analyzer according to the analyzer manual.
6. Tear open the reagent tip pouch, attach the reagent tip to the electronic pipette, and aspirate 340 µL sample from the blood tube.
7. Dispense the blood sample into the Cup.
8. Aspirate and dispense the sample once again to facilitate thorough mixing of reagents with the blood sample. Ensure sample pipetting is performed without interruption.
9. Start the test as described in the analyzer manual.
10. The test will stop, or you can stop the test as described in the analyzer manual.
11. Remove the Cup & Pin and dispose according to local regulations.

Quality Control

Plasma-based quality control materials can be used to confirm the stability of test results determined with the TPA assay over time.

Result Interpretation and Expected Values

The effect of fibrinolysis inhibitors is detected by the lysis time (LT) — the time from CT until 50% maximum lysis (ML) is detected. When ML does not reach 50%, no LT is displayed.

Reference Range (Healthy Individuals)

The reference range was determined in a clinical study including 123 healthy individuals (aged 18.9–79.2 years; 51.2% female, 48.8% male). Reference ranges were determined using the 95% central interval (2.5^{th} – 97.5^{th} percentile):

Parameter	Mean	SD	2.5th Percentile	97.5th Percentile
CT (sec)	32.2	7.2	17	50.8
MCF (mm)	28.6	9.0	9	41
ML (%)	94.2	6.9	71	96

LT Reference Range: 135 – 270 sec
(n=123 healthy individuals, 95% central interval)

Clinical Study — Tranexamic Acid Detection (n=105 samples, 40 patients)

All 69 patients with TXA ≥10 µg/mL had ML <50% (fibrinolysis blocked; no lysis time expressed — set to 3500 sec). At a cut-off of ≥2100 sec for LT:

Measure	Value
Sensitivity	100%
Specificity	81%
Positive Predictive Value (PPV)	70%
Negative Predictive Value (NPV)	100%
Positive Likelihood Ratio (LR+)	5.3
Negative Likelihood Ratio (LR–)	0

TXA Study Results by Concentration Group

CT (sec) by TXA Group:

TXA Group	Min	Max	Mean	SD
2.6–4.9 µg/mL	27	58	40.3	11.1
5–9.6 µg/mL	21	55	36.9	8.2
>10 µg/mL	21	291	50.6	35.5

MCF (mm) by TXA Group:

TXA Group	Min	Max	Mean	SD
2.6–4.9 µg/mL	47	66	58.9	4.5
5–9.6 µg/mL	43	63	56.7	5.4
>10 µg/mL	51	71	59.2	4.0

ML (%) by TXA Group:

TXA Group	Min	Max	Mean	SD
2.6–4.9 µg/mL	3	98	25.1	32.8
5–9.6 µg/mL	22	97	78.0	20.8
>10 µg/mL	0	18	6.5	4.3

Precision

A precision study was conducted in 3 runs, on 3 analyzers, with 3 operators and 3 lots (54 determinations per sample):

Sample	Mean LT (sec)	SD (sec)	CV (%)	Range (sec)
Without TXA	206.7	24.0	11.6%	165–285
With 10 µg/mL TXA	3500*	—	0%	All <50% ML

NOTE: * All samples with 10 µg/mL TXA had fibrinolysis <50%; no LT was expressed. LT set to 3500 sec (instrument maximum). CV = 0%.

Limitations and Interferences

Every in-vitro diagnostic method can deliver incorrect results under certain circumstances. Precautions should be taken to avoid misinterpretations.

The TPA assay mechanism is not specific to tranexamic acid. Other fibrinolysis inhibitors can also affect the result:

- Epsilon-amino-caproic acid and aprotinin can also block TPA-triggered fibrinolysis, leading to false-positive results.
- Endogenous inhibition of fibrinolysis can also block fibrinolysis, leading to false-positive results.
- Measurements with irregular or noisy curves should be discarded and the test repeated.

Interference Testing Results:

The following interfering substances were tested. All tested substances did NOT affect detection of tranexamic acid using the cut-off of 2100 sec for LT:

Substance / Condition	Interference with TXA Detection
Aspirin	No effect at cut-off ≥2100 sec
Cangrelor	No effect at cut-off ≥2100 sec
Apixaban	No effect at cut-off ≥2100 sec
UFH (unfractionated heparin)	No effect at cut-off ≥2100 sec
LMWH (low molecular weight heparin)	No effect at cut-off ≥2100 sec
Haemodilution	No effect at cut-off ≥2100 sec

Manufacturer

APIRO Diagnostics Kft.	Liget utca 3/2, HU-2040 Budaörs, Hungary
+36 30 203 3334	info@apiro.eu | www.apiro.eu
Distribution (Australia)	Haemoview Diagnostics

Symbols

Symbol	Meaning	Symbol	Meaning
Manufacturer icon	Manufacturer	Hourglass icon	Use-by date
LOT	Batch code	REF	Catalogue number
Country of manufacture (HU)	Country of manufacture	Crossed box icon	Do not use if package is damaged
2°C – 8°C	Temperature limit	No-reuse icon	Do not re-use
IFU book icon	Consult instructions for use or eIFU	Σ n	Contains sufficient for <n> tests
Not for near-patient testing	Not intended for near-patient testing	■ Caution/Warning	Caution / Warning
UDI	Unique device identifier	CE 2265	CE marking of conformity (NB 2265)
IVD	In vitro diagnostic medical device	Biohazard icon	Biological risks

Version History

Date	Version	Change Description
2025-04-25	1	Initial version
2025-06-24	2	Sections "Sample collection" and "Limitations and interferences" supplemented
2025-10-24	3	Switched symbols "Manufacturer" and "Country of manufacture"

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