**Chromogenic Assay**

**TAFI**

1. **PEFAKIT® TAFI**

2. **PEFAKIT® TAFI Controls and Calibrator**

**Chemical Composition:***

**Kit contents:**
- 2 vials of Activator (4 mL)
- 2 vials of Start Reagent (4 mL)
- 2 vials of Diluent (5 mL)
- Calibrators and controls included

**Plasma based chromogenic assay for determination of Thrombin Activatable Fibrinolysis Inhibitor enzyme activity (TAFI)**

Functional chromogenic assay based on direct substrate cleavage. TAFI, present in the plasma sample is activated by thrombin/thrombomodulin. A synthetic substrate is selectively and irreversibly cleaved by TAFIa, producing a thiol derivative. This thiol reacts with the colourless Ellman's reagent splitting off the yellow coloured 5-mercapto-2-nitro-benzoic acid. The extinction at wavelength 405 nm measured at the end of the enzymatic reaction is directly proportional to the concentration of TAFI activated by thrombin/thrombomodulin.

**Use**

The test can be run on fully automated coagulation analyzers by single determinations, giving results within 5 minutes.

**Features & benefits**

- Functional assay based on direct substrate cleavage
- Specific for TAFI
- Stable reagents

**Characteristics:**

- Performance either on fully automated coagulation analyzers or microtiterplate readers:
  - Single determinations
  - Easy handling
  - Results in 3 minutes
- No additional equipment needed
- Validated protocols

**2. PEFAKIT® TAFI CONTROLS AND CALIBRATOR**

**Kit contents:**
- 1 vial of Calibrator (1 ml)
- 1 vial of Control 1 (1 ml)
- 1 vial of Control 2 (1 ml)

Calibrator and control plasmas for determination of TAFI with Pefakit® TAFI

Calibrator and 2 controls normal and abnormal human plasmas for determination of TAFI with Pefakit® TAFI
C1-INHIBITOR

1. TECHNOCHROM® C1-INH

**Chromogenic Assay**

Kit contents:
- 1 vial of Substrate C1 (3 mL)
- 1 vial of C1-Esterase (3 mL)
- 1 vial of Sample Buffer A (25 mL)
- 1 vial of Reaction Buffer B (20 mL)
- 1 vial of Coagulation Reference (1 mL)
- 1 vial of Coagulation Control A (1 mL)
- 1 vial of Coagulation Control N (1 mL)

Reagent kit for the chromogenic determination of C1 esterase inhibitor (C1-INH).

Defect in the synthesis of C1-INH leads to hereditary angioedema.

The chromogenic activity reagent is used for the diagnosis of angioneurotic edema and for monitoring substitution or steroid therapy in angioneurotic edema. The C1-esterase inhibitor (C1-INH) is a regulatory protein that functions as an inhibitor of several serine proteases in the complement system, the kallikrein-kinin system, the coagulation cascade and in fibrinolysis.

### C1-Inhibitor standard curve

![C1-Inhibitor standard curve](image)

C1-inhibitor (C1-inh, C1 esterase inhibitor) is a protease inhibitor belonging to the serpin superfamily. Its main function is the inhibition of the complement system to prevent spontaneous activation. C1-inhibitor is an acute-phase protein that circulates in blood at levels of around 0.25 g/L. The levels rise ≈ 2-fold during inflammation. C1-inhibitor irreversibly binds to and inactivates C1r and C1s proteases in the C1 complex of classical pathway of complement. MASP-1 and MASP-2 proteases in MBL complexes of the lectin pathway are also inactivated. This way, C1-inhibitor prevents the proteolytic cleavage of later complement components C4 and C2 by C1 and MBL. Although named after its complement inhibitory activity, C1-inhibitor also inhibits proteases of the fibrinolytic, clotting, and kinin pathways. C1-inhibitor is the most important physiological inhibitor of plasma kallikrein, FXa, and FXIIa.

### Related products

- Coagulation Reference
- Coagulation Control N
- Coagulation Control A
Chromogenic Assay

ANTITHROMBIN

1. TECHNOCHROM® ATIII ANALYZER KIT

<table>
<thead>
<tr>
<th>Cat. number</th>
<th>Conditioning</th>
<th>Package size</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-5340224</td>
<td>kit</td>
<td>100</td>
</tr>
</tbody>
</table>

Kit contents:
- 1 vial of ATIII Reagent A2 (43 UI)
- 1 vial of Substrate AT III Th-1 (10 μmol)
- 2 vials of Buffer A (25 mL) (+ Reagent A1)

Complete reagent kit suitable for the chromogenic determination of ATIII on auto-analyzers.

The TECHNOCHROM® AT III modular reagent is a system of reagents for the chromogenic determination optimized for the manual method (Reagent A1, Th 1 and Buffer A1) and different types of auto analyzers (Reagent A2 and Reagent Th-1). The optimised combination of the Substrate Th-1 with Reagents A1 or A2 respectively is mentioned in the application sheet for the auto analyser used, which is available on request.

Features & benefits
- Linearity: 0 - 130 %.
- Clotting method for automated coagulation analyzers
- All the compounds are available separately

Information

Antithrombin is also termed Antithrombin III (AT III). The designations Antithrombin I through to Antithrombin IV originate in early studies carried out in the 1950s by Seegers, Johnson and Fell.

Antithrombin I (AT I) refers to the absorption of thrombin onto fibrin after thrombin has activated fibrinogen. Antithrombin II (AT II) refers to a cofactor in plasma, which together with heparin interferes with the interaction of thrombin and fibrinogen. Antithrombin III (AT III) refers to a substance in plasma that inactivates thrombin. Antithrombin IV (AT IV) refers to an antithrombin that becomes activated during and shortly after blood coagulation. Only AT III and possibly AT I are medically significant.

Related products

Coagulation Reference
Coagulation Control N
Coagulation Control A
CHROMOPEP® Protein C

The CHROMOPEP PC kit is a chromogenic assay designed for quantitative determination of protein C activity in human citrated plasma.

Protein C is a vitamin K dependent plasma protein which plays an important role in the anticoagulant regulatory mechanisms. It circulates as a zymogen and is converted to an active serine protease, activated Protein C (APC), by the action of thrombin in presence of thrombomodulin. APC regulates the coagulation system by proteolytic cleavage and inactivation of activated factors V and VIII. Hereditary and/or acquired Protein C deficiency has been shown to be a risk factor for development of venous thrombosis.

Protein C in plasma is activated by a specific enzyme from Agkistrodon c. contortrix Snake venom. The amount of activated protein C is determined by the rate of hydrolysis of the chromogenic substrate pNAPEP 1566TI. The pNA release measured at 405 nm is proportional to the Protein C level in the range from 0 – 130 % of normal plasma.

**Characteristics**
- Technical validation file
- Linearity: 0 – 130 (% activity)
- Detection limit less than 1 %
- End point or kinetic method

**Features & benefits**
- The test can be run on fully automated coagulation analyzers by single determinations, giving results within 5 minutes
- Stable reagents 5 days on analyzers
- Validated protocols

**Information**
Protein C is a vitamin K dependent serine protease which, when activated, inhibits coagulation by inactivating the clotting factors V/Va and VIII/Villa. Additionally, protein C has been shown to have profibrinolytic activity. Hereditary, heterozygous protein C deficiency has been found to be associated with an increased risk of venous thrombosis and hereditary, homozygous total protein C deficiency has been found in neonates with purpura fulminans. Reduced levels of protein C have been found in association with vitamin K deficiency and during coumarin therapy.
ELISA Assay

PROTEIN C

1. TECHNOZYM® PROTEIN C ELISA KIT

Kit contents:
- 12 ELISA strips (12 x 8 wells)
- 1 bottle of Wash solution concentrate (80 mL)
- 1 bottle of incubation buffer (90 mL)
- 5 calibrators, lyophilized
- 1 vial of Low control plasma, lyophilized
- 1 vial of High control plasma, lyophilized
- 1 vial of Conjugate (0.3 mL)
- 1 vial of TMB (12 mL)
- 1 bottle of Stop Solution (12 mL)

Protein C ELISA Kit for the determination of Protein C antigen plasma levels in patients with thrombotic tendencies.

Protein C is a vitamin K dependent serine protease which, when activated, inhibits coagulation by inactivating the clotting factors V/Va and VIII/VIIIa. Additionally, protein C has been shown to have profibrinolytic activity. Hereditary, heterozygous protein C deficiency has been found to be associated with an increased risk of venous thrombosis and hereditary, homozygous total protein C deficiency has been found in neonates with purpura fulminans. Reduced levels of protein C have been found in association with vitamin K deficiency and during coumarin therapy.

2. TECHNOZYM® PCI ACTIBIND ELISA KIT

Quantitative assay for the determination of active antigen levels of PCI in patients with disseminated intravascular coagulation and in atheriosclerotic disease.

The TC Actibind PCI test is a solid phase enzyme immunoassay in which an anti-u-PA monoclonal antibody that does not interfere with the active site on the urokinase antigen molecule is coated onto a plastic microtiter plate. Urokinase is incubated on the plate leaving its active site accesible for complex formation with active PCI contained in the sample. Following the binding of the sample the plate is washed and enzyme-labelled monoclonal anti-PCI which recognises another site on the active PCI antigen is incubated on the plate. The quantity of POX which binds is proportional to the quantity of active PCI antigen i.e. non-complexed antigen contained in test samples.
Clotting Assay

PROTEIN C

1. CRYOCHECK™ CLOT C

Kit contents:
- Protein C Deficient Plasma
- Clot C Activator (+ C & S Diluent)

Clot-based assay intended for the quantitative determination of protein C activity in citrated human plasma.

CRYOcheck™ CLOT C functions by direct activation of protein C in the patient sample using Protein C Activator. The common pathway of coagulation is initiated with a Russell’s viper venom (RVV-X) reagent to convert factor X to Xa and bypassing all factors above the common pathway. Patients with a protein C deficiency or dysfunction will have shortened CRYOcheck Clot C clotting times relative to patients with normal levels of functional protein C. The clotting time is proportional to the amount of functional protein C in the patient’s plasma and this can be quantified using a calibration curve.

2. C & S DILUENT

Buffer solution intended for use as a diluent for reagents and patient samples in coagulation tests.

C & S Diluent is an optimized buffered solution containing sodium azide (<0.1 %) as a preservative.
**CRYOcheck™ Clot S**

Clotting assay intended for the quantitative determination of protein S activity in citrated human plasma.

**Clot-based assay**

- CRYOcheck™ clot S initiates the common pathway of coagulation in plasma using a Russell’s viper venom (RVV-X) reagent to convert factor X to Xa in the presence of activated protein c (APc), bypassing all factors above the common pathway.
- When mixed with protein S deficient plasma, samples from patients with a protein S deficiency or dysfunction will have shortened CRYOcheck clot S clotting times relative to samples with normal levels of functional protein S. The clotting time is proportional to the amount of functional protein S in the patient’s plasma and this can be quantified using a calibration curve.

**Characteristics**

- Frozen format eliminates reconstitution errors
- Unaffected by factor VIII:C activity levels up to 600 %
- Unaffected by samples from patients heterozygous for the factor V Leiden mutation
- Interference by lupus anticoagulants has not been observed
- Up to 300 tests per kit when using 3.0 mL format

**Features & benefits**

- Frozen format eliminates reconstitution errors
- Unaffected by factor VIII:C activity levels up to 600 %
- Unaffected by samples from patients heterozygous for the factor V Leiden mutation
- Interference by lupus anticoagulants has not been observed
- Up to 300 tests per kit when using 3.0 mL format

**C & S DILUENT**

Buffer solution intended for use as a diluent for reagents and patient samples in coagulation tests.

C & S Diluent is an optimized buffered solution containing sodium azide (<0.1 %) as a preservative.
THROMBOPHILIA

Clotting Assay

FACTOR V LEIDEN / APCR

1. PEFAKIT® APC-R FACTOR V LEIDEN

Kit contents:
• 3 vials of PC/RVV-V (+APC) Reagent (2 mL)
• 3 vials of RVV-V (-APC) Reagent (2 mL)
• 3 vials of PTA Reagent (4 mL)
• 3 vials of Dilution Plasma (2 mL)

Plasma based functional assay for the determination of resistance of Factor Va to inactivation by activated protein C.

PEFAKIT® APC-R Factor V Leiden is a plasma based functional assay for the determination of resistance of Factor Va to inactivation by activated protein C (APC) caused by the factor V Leiden mutation (FV:Q506). It differs from other functional APC resistance tests by acting specifically on the prothrombinase complex level. It is based on a FV-dependent prothrombin activator isolated from snake venom. Robustness and specificity of the assay is enhanced by elimination of possible disturbing influences by factors upstream the coagulation cascade and independency from calcium.

Characteristics

Specificity: 100 %
Sensitivity: 100 %

Features & benefits

Not influenced by Lupus anticoagulants, Protein C, Protein S, Heparins, AT, Fibrinogen and abnormal conditions of PT, FVIII, FX, TFPI and D-Dimer

Information

Factor V Leiden is a genetic disorder characterized by a poor anticoagulant response to activated Protein C and an increased risk for venous thromboembolism. Factor V Leiden is associated with a 2- to 3-fold increased relative risk for pregnancy loss and possibly other obstetric complications. The clinical expression of Factor V Leiden is influenced by the number of Factor V Leiden alleles, coexisting genetic and acquired thrombophilic disorders and circumstantial risk factors.

Informations

• Functional clotting assay with unparalleled specificity and sensitivity
• Clear discrimination between wildtype, heterozygous and homozygous carriers
• PCR-like results
• Protocols for all major routine analyzers
2. PEFAKIT® APC-R FACTOR V LEIDEN CONTROLS

<table>
<thead>
<tr>
<th>Cat. number</th>
<th>Conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-502-21</td>
<td>2 x 3 x 1.0 mL</td>
</tr>
</tbody>
</table>

Heterozygous ant Normal control plasmas for confirmation of factor V Leiden mutation.


3. CRYOCHECK™ APCR POSITIVE CONTROL

<table>
<thead>
<tr>
<th>Cat. number</th>
<th>Conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>APCR-05</td>
<td>25 x 0.5 mL</td>
</tr>
</tbody>
</table>

Positive control in the clot-based assessment of activated protein C resistance (APCr) in citrated human plasma.

cryocheck™ APCR Positive Control is citrated human plasma collected from donor(s) that have tested positive for APCr by clot based screening assays. Each donor used in the preparation of this product has been genetically tested using polymerase chain reaction (PCR) based techniques to confirm the presence of the heterozygous form of the factor V Leiden mutation.
1. THROMBO INCODE KIT

<table>
<thead>
<tr>
<th>Cat. number</th>
<th>Conditioning</th>
<th>Package size</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-TIC-RTPCR-16</td>
<td>6 vials</td>
<td>12 x 16 patients</td>
</tr>
<tr>
<td>10-TIC-RTPCR-16P</td>
<td>Plate prefilled</td>
<td>12 x 16 patients</td>
</tr>
</tbody>
</table>

Kit contents:
• Thrombo inCode TM Kit – 6 vials
• 1 vial of positive control
• User manual

Thrombo inCode test kit is an IVD-CE marked kit for the simultaneous allele determination of 12 variants in 7 genes (PT, FV, FXII, FXIII, ABO, Serpin A10, and Serpin C1) associated with thrombosis in genomic DNA, extracted from either saliva or blood samples.

Thrombo inCode integrates and automates the detection of 12 genetic factors of risk partners to thromboembolism, in a simple, rapid, reproducible and applicable to a great number of samples, and that improves the preventive strategy in patients and relatives with risk to suffering thromboembolic events.

Features & benefits

Thrombo inCode is the first IVD-CE commercial tool that integrates and automates in a single kit the detection of the most relevant genetic risk variants that significantly enhances our predictive capacity and will improve the prevention strategy for patients (and their relatives) who are at risk of developing thromboembolic events and also the diagnosis and the treatment of the thromboembolic disease. Thrombo inCode obtained the third award of Eurothrombosis 2011 to the best communication of the Group of Thrombosis of the European Company of Cardiology.

Use

Test time: 2h30
Method validated on following platforms:
• Applied Biosystems 7500 et 7500 Fast
• Bio-Rad CFX96
• Roche Lightcycler 480

Characteristics

Thrombo inCode is a DNA-chip, of high quality (Sensitivity and specificity of 100 %) that allows the analysis of the presence of the variants included in a rapid, reproducible and reliable manner. Thrombo inCode is offered to the physician as a kit (DNA-Chip) or as a service of Personalized Medicine, which includes a report with recommendations, from an algorithm that integrates the genetic and clinical information of the patient. This service is offered by Ferrer inCode through a web site and is addressed to the physician.

Thrombo inCode improves significantly the prediction of the risk of thrombosis, detecting 51.6 % of persons who presented a thromboembolic event and by means of the analysis of the FV Leiden and Protrombin did not have genetic risk. The aim of the study was to determine if the set of genetic variants included in Thrombo inCode improves the capacity of prediction of thrombosis opposite to FV Leiden and Protrombin.
ThromboInCode identifie au moins un des variants génétiques du risque thrombotique chez 87,3% des patients avec thrombose (contre 19,7% avec le Facteur V Leiden).

<table>
<thead>
<tr>
<th>PANEL</th>
<th>VFL+PT</th>
<th>TIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARRHA OR</td>
<td>1.76</td>
<td>1.18</td>
</tr>
<tr>
<td>Cases carriers</td>
<td>50.50</td>
<td></td>
</tr>
<tr>
<td>SANT PAU (SP)</td>
<td>7.17</td>
<td>2.53</td>
</tr>
<tr>
<td>Cases carriers</td>
<td>19.7</td>
<td>95.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Intrinsic pathway**
- Thromboprophylaxis in patients with previous TE event
- Thromboprophylaxis in patients with familiar history of TE event and:
  - Pregnancy
  - Prothrombotic situations

**Extrinsic pathway**
- Recommendation / No recommendation in women to start Oral Contraceptives with familiar history of TE
- Prophylaxis of microthrombosis in women with previous history of:
  - Repeated miscarriage
  - Implantational failures
  - Preeclampsia

**Common pathway**
- Antithrombin

**Thrombophilic Panel**
- FVL+PT
- ABO (A1), several rs
- C46T F12 rs1801020
- Val34 Leu F13 rs3985
- R67X rs2232698
- A384S rs121909548

**Homozygous**
- FVL+PT
- ABO (A1), several rs
- C46T F12 rs1801020
- Val34 Leu F13 rs3985
- R67X rs2232698
- A384S rs121909548

**Heterozygous**
- FVL+PT
- ABO (A1), several rs
- C46T F12 rs1801020
- Val34 Leu F13 rs3985
- R67X rs2232698
- A384S rs121909548

**Carriers**
- FVL+PT
- ABO (A1), several rs
- C46T F12 rs1801020
- Val34 Leu F13 rs3985
- R67X rs2232698
- A384S rs121909548

**Antithrombin**
- Antithrombin

**Prothrombin**
- Prothrombin (II)
- Prothrombin (IIa)
- Fibrinogen (I)
- Fibrinogen (Ia)
- Fibrin clot stabilization

**Activated Protein C**
- Activated Protein C
- Protein S
- Protein C + Thrombomodulin

**Protein S**
- Protein S

**Prothrombin (II)**
- Prothrombin (IIa)
- Fibrinogen (I)
- Fibrinogen (Ia)
- Fibrin clot stabilization

**Fibrin clot stabilization**
- Fibrin clot stabilization

**Val34Leu**
- Val34Leu

**FV Hong Kong**
- FV Hong Kong

**FV Cambridge**
- FV Cambridge

**FV Leiden**
- FV Leiden rs20710
- FV Leiden rs1799756
- FV Leiden rs1801020
- FV Leiden rs3985
- FV Leiden rs2232698
- FV Leiden rs121909548

**Fibrin clot stabilization**
- Fibrin clot stabilization

**Antithrombin**
- Antithrombin

**Prothrombin (II)**
- Prothrombin (IIa)
- Fibrinogen (I)
- Fibrinogen (Ia)
- Fibrin clot stabilization

**Val34Leu**
- Val34Leu

**FV Hong Kong**
- FV Hong Kong

**FV Cambridge**
- FV Cambridge

**FV Leiden**
- FV Leiden rs20710
- FV Leiden rs1799756
- FV Leiden rs1801020
- FV Leiden rs3985
- FV Leiden rs2232698
- FV Leiden rs121909548

**Fibrin clot stabilization**
- Fibrin clot stabilization

**Antithrombin**
- Antithrombin

**Prothrombin (II)**
- Prothrombin (IIa)
- Fibrinogen (I)
- Fibrinogen (Ia)
- Fibrin clot stabilization

**Val34Leu**
- Val34Leu

**FV Hong Kong**
- FV Hong Kong

**FV Cambridge**
- FV Cambridge

**FV Leiden**
- FV Leiden rs20710
- FV Leiden rs1799756
- FV Leiden rs1801020
- FV Leiden rs3985
- FV Leiden rs2232698
- FV Leiden rs121909548

**Fibrin clot stabilization**
- Fibrin clot stabilization

**Antithrombin**
- Antithrombin