BIOLABO
www.biolabo.fr
MANUFACTURER:
BIOLABO S.A.S
Les Hautes Rives
02160, Maizy, France

BIO-FIBRI Chronometric determination of Fibrinogen

For quantitative determination of fibrinogen in human plasma

REF 13450	**R1** 6 x 4 mL	**R2** 1 x 125 mL
REF 13451	**R1** 6 x 10 mL	**R2** 2 x 150 mL

TECHNICAL SUPPORT AND ORDERS
Tel: (33) 03 23 25 15 50
support@biolabo.fr
Latest revision: www.biolabo.fr

CE

IVD

Made In France

I: corresponds to significant modifications

I INTENDED USE

Reagent and plasma diluting buffer for quantitative determination of fibrinogen in human plasma to survey the level of fibrinogen. Laboratory professional use (manual or automated method).

GENERALITIES (1) (2)

Fibrinogen is the principal plasma protein affecting the sedimentation rate. Fibrinogen concentration raises several folds during inflammation or tissue necrosis. Oestrogen ingestion, diabetus, obesity or pregnancy may also induce increased levels. Evidence as shown that plasma levels above the reference range constitute a significant independent risk factor for both coronary artery and cerebrovascular diseases.
A decreased fibrinogen level in plasma is generally associated with a disturbance of liver metabolism (cirrhosis, icterus...) or with fibrinolysis and DIC (disseminated intravascular coagulation)

PRINCIPLE (5) (6)

Method based on Von Clauss and al studies, validated by Destaing F. and al.

When an excess of thrombin is present, the fibrinogen is transformed into fibrin with the formation of a detectable clot.

REAGENTS

R1 **BIO-FIBRI** Freeze dried reagent

Calcium Thrombin from animal origin
Kaolin (in slight quantity to optimize optical detection)

R2 **BIO-FIBRI** Diluting buffer for plasmas

HEPES 0.02 M, pH 7.35
Anticoagulant (citrate)
Heparin inhibitor

According to 1272/2008 regulation, these reagents are not classified as dangerous.

SAFETY CAUTIONS

- Refer to current Material Safety Data Sheet available on request or on www.biolabo.fr
- Verify the integrity of the contents before use.
- Waste disposal: Respect legislation in force in the country.
- All specimens or reagents of biological origin should be handled as potentially infectious. Respect legislation in force in the country.

Any serious incident that has occurred in connection with the device is notified to the manufacturer and the competent authority of the Member State in which the user and/or patient is based.

I REAGENTS PREPARATION

Vial R1: Reconstitute immediately with the volume of demineralized water indicated on the label. Mix gently until complete dissolution.
Vial R2: ready for use (to dilute plasmas)

STABILITY AND STORAGE

Stored away from light, well caped in the original vial at 2-8°C, and used as described, reagents are stable:

Unopened:

- Until expiry date stated on the label of the kit.

Once opened:

- Reconstitute vial R1 immediately
- Transfer requested quantity and well recap and store at 2-8°C
- Working reagent is stable
  - ✓ 24 hours at room temperature
  - ✓ 30 days at 2-8°C
  - ✓ 30 days at -20°C.

Don't use reconstituted reagent after expiry date.

SPECIMEN COLLECTION AND HANDLING (6) (2)

Plasma: Careful venipuncture Blood/anticoagulant ratio: 4.5 mL of blood for 0.5 mL of trisodium citrate 0.109 M. Avoid blood drawing with a syringe that could result in the formation of micro-clots. Centrifuge for 10 minutes at 2500 g.

Fibrinogen is stable in plasma for:

- 4 h at room temperature, 18 months thawing at -70°C

LIMITS (2) (3) (8)

Fibrinogen degradation products (FDP) may lead to under-estimations. Then re-assay at a higher dilution level.
A specific heparin inhibitor present in diluting buffer allows the test of fibrinogen in heparinised plasmas.

For a more comprehensive review of factors affecting this assay refer to the publication of Young D.S. and Norbert W. Tietz.

MATERIAL REQUIRED BUT NOT PROVIDED

1. Basic medical analysis laboratory equipment.
2. Automatic or semi-automated coagulation analyzer
3. Demineralised water for preparation of the reagent.

Manufacturer	Expiry date	In vitro diagnostic	Storage temperature	Dematerialized water	Biological risk
Product Reference	See Insert	Batch number	Store away from light	Sufficient for	Dilute with

REFERENCE INTERVALS (1) (2)

Clauss Method Fibrinogen (mg/dL) 150 - 400
Reference range may depend on the reagent-instrument combination
Each laboratory should establish its own normal ranges for the population that it serves

QUALITY CONTROL

REF 13961	Control Plasmas Level 1	6 X 1 mL
REF 13962	Control Plasmas Level 2	6 X 1 mL
REF 13963	Control Plasmas Level 3	6 X 1 mL

Or

REF 13971	Coatrol 1	6 x 1 mL
REF 13972	Coatrol 2	6 x 1 mL

- External quality control program.

It is recommended to control in the following cases:

- At least once a run
- At least once within 24 hours
- When changing vial of reagent
- After maintenance operations on the instrument

If control is out of range, apply following actions:

1. Prepare a fresh control serum and repeat the test
2. If control is still out of range, use a new vial of fresh calibrator
3. If control is still out of range, use a new vial of reagent and reassay

If control is still out of range, please contact BIOLABO technical support or your local Agent.

I PERFORMANCES

On automatic analyser Thrombolyzer Compact X at 37°C.

Precision:

Within run N = 20	*Level 1*	*Level 2*	*Between run N = 20*	*Level 1*	*Level 2*
Mean (mg/dL)	145	278	Mean (mg/dL)	152	307
S.D. (mg/dL)	4.2	3.6	S.D. (mg/dL)	3.4	10.4
C.V. %	2.9	1.3	C.V. %	2.3	3.4

On automatic analyser SOLEA 100 at 37°C:

Precision:

Within run N = 20	*Level 1*	*Level 2*	*Between run N = 20*	*Level 1*	*Level 2*
Mean (mg/dL)	133	292	Mean (mg/dL)	148	323
S.D. (mg/dL)	4.4	6.3	S.D. (mg/dL)	4.1	16.5
C.V. %	3.3	2.1	C.V. %	2.7	5.1

Linearity Range: between 99.5 and 871 mg/dL

Comparison with commercially available reagent:

171 plasmas located between 69 mg/dL and 910 mg/dL were tested
y = 0.9729 x - 13,847 r= 0.9900

Interferences:

Turbidity	No interference up to 0.543 abs
Hemoglobin	No interference up to 261 µmol/L
Bilirubin	No interference up to 496 µmol/L
Low Molecular weight heparin	No interference up to 2.0 IU anti-Xa
Non-fractionated Heparin	Negative interference from 1.14 IU anti-Xa

Other substances may interfere with the results (see § Limits)

Onboard Stability: at least 5 days when kept 8 hours per days onboard

Calibration Stability: 8 days

Make a new calibration when changing reagent batch, if quality control results are found out of the established range and after maintenance operations.

CALIBRATION

- REF 13970 Reference plasma traceable to WHO SSC/ISTH Secondary Coagulation Standard NIBSC code: SSCLOT4

Or

- Use the enclosed table of conversion.

Manual method on semi-automate BIO SOLEA 2, BIO SOLEA 4:

Prepare a calibration curve with 1/5, 1/10, 1/15 and 1/20 dilution in Diluting Buffer. Measure in triplicate the clotting time of each level.

Automated method on SOLEA 100: Perform a calibration using automatic dilutions indicated in the specific application

PROCEDURE

Let stand working reagent at room temperature (20-25°C),

Manual method on semi-automate BIO SOLEA2, BIO SOLEA 4:
Dilute samples and controls: 1/10 in Diluting Buffer.
Reference plasma: prepare dilutions as indicated in § Calibration

Diluted Plasma	0.2 mL
Incubate for 2 minutes at 37°C.	
Working Reagent (vial R1) homogenised	0.2 mL
The automatic countdown timer will start immediately after reagent addition and stop when the clot is formed.	

Automated Procedure on SOLEA 100:
Refer to full detailed application.

- Performances and stability data have been validated on SOLEA100 and Thrombolyzer Compact X (available on request).
- With manual procedure and on other automated coagulation analyzer, performances and stability data must be validated by user.
- Other validated applications or proposal applications are available on request

CALCULATION

The clotting time is in reverse order proportional to the fibrinogen 's concentration in the specimen

According to table of conversion:

Normal plasmas, dilution 1/10: values are obtained thanks to the table

Abnormal plasmas, requiring a different dilution than 1/10:
consider the dilution factor to calculate the result.

- ✓ dilution 1/20, multiply by 2 the value read on the table.
- ✓ dilution 1/5, divide by 2 the value read on the table.

Manual method on semi-automate BIO SOLEA 2, BIO SOLEA 4:
Enter the mean of the clotting time found for each dilution of Reference plasma, and the corresponding Fibrinogen concentration (mg/dL) in the system.
Fibrinogen concentration will be calculated automatically according to calibration curve.

Automated method on SOLEA 100:

Fibrinogen concentration (mg/dL) will be calculated automatically according to calibration curve.

REFERENCES

(1) *TIETZ N.W. Textbook of clinical chemistry, 3rd Ed. C.A. Curtis, E.R. Ashwood, W.B. Saunders (1999) p. 1813, p.1846.*
(2) *Clinical Guide to Laboratory Test, 4th Ed., N.W. TIETZ (2006) p.404-405*
(3) *YOUNG D.S., Effect of Drugs on Clinical laboratory Tests, 4th Ed. (1995) p.3-260 à 3-261*
(4) *VON CLAUSS A. ACTA HAEMATOLOGICA 1957. **17**, 237-246.*
(5) *DESTAING F-DUZER A. PATHOLOGIE ET BIOLOGIE 1960, **8**, 1615.*
(6) *HURLET A.-JOSSO F: PATHOLOGIE BIOLOGIE 1972, **20**, 3-4,165-173*
(7) *CAEN-LARRIEU-SAMAMA: L'HEMOSTASE, 1968, EXPANSION SCIENTIFIQUE.*
(8) *Technique en hématologie, Flammarion médecine-sciences, 2nd éd . 1978, p.184-186*