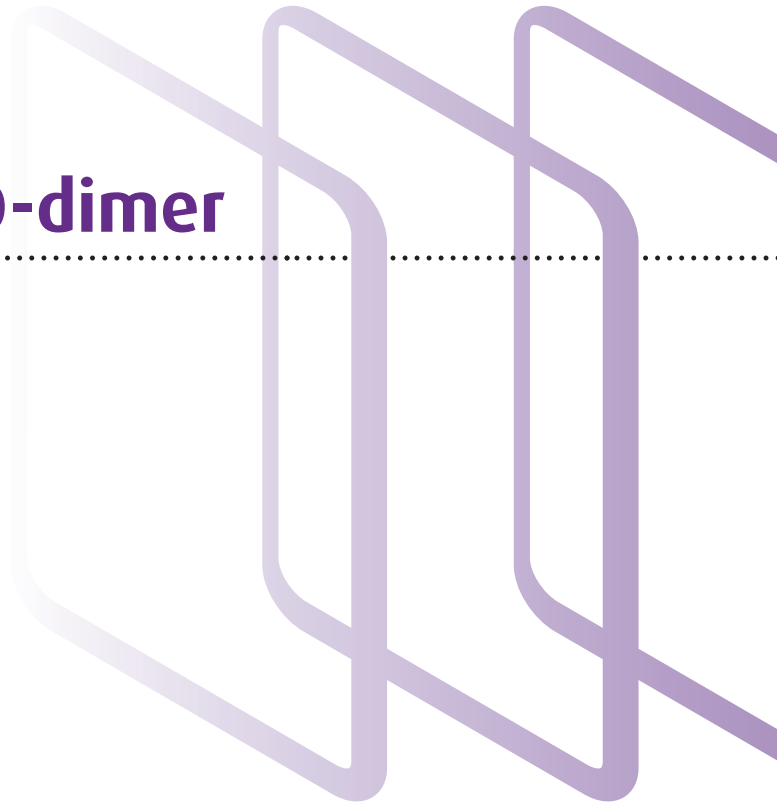




# Clearview **Simplify D-dimer**

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Fingerprick blood

Kapillarblut aus der Fingerbeere

Fingerprikning

Colecta de Sangre por Punción Digital

Sang du bout du doigt

Fingerstick Blood

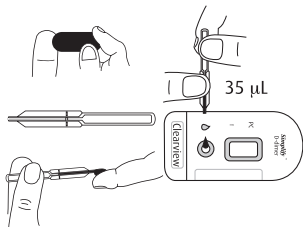
Sangue dal polpastrello

Vingerprikbloed

Blod fra fingertupp

Sangue por picada do dedo

Kapillärblod med fingerstick



Venous whole blood

Venöses Vollblut

Venøst helblod

Sangre Venosa Total

Sang veineux total

Φλεβικό ολόκληρο αίμα

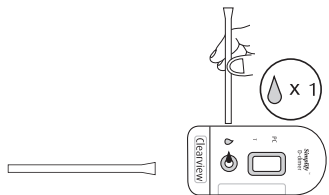
Sangue intero venoso

Veneus vol bloed

Venøst fullblod

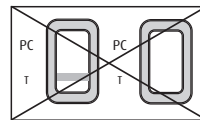
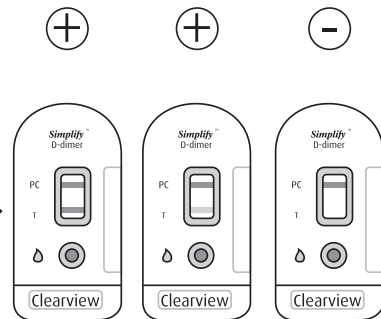
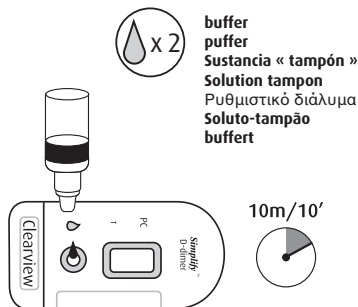
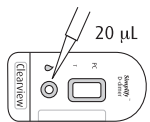
Sangue Venoso Total

Venøst helblod



Plasma

Πλάσμα



## INTENDED USE

Rapid immunochromatography test for the qualitative detection of D-dimer in human whole blood and plasma; for use as an aid in the assessment and evaluation of patients with suspected disseminated intravascular coagulation (DIC), deep vein thrombosis (DVT), and pulmonary embolism (PE).

## SUMMARY

During blood coagulation, fibrinogen is converted to fibrin by the activation of thrombin. The resulting fibrin monomers polymerise to form a soluble gel of non-cross-linked fibrin. This fibrin gel is then converted to cross-linked fibrin by thrombin activated Factor XIII to form an insoluble fibrin clot. Production of plasmin, the major clot-lysing enzyme, is triggered when a fibrin clot is formed. Although fibrinogen and fibrin are both cleaved by the fibrinolytic enzyme plasmin to yield degradation products, only degradation products from cross-linked fibrin contain D-dimer and are called cross-linked fibrin degradation products<sup>1,2</sup>. Therefore, fibrin derivatives in human blood or plasma containing D-dimer are a specific marker of fibrinolysis.

## TEST PRINCIPLE

The **Clearview Simplify D-dimer** test uses the D-dimer specific murine monoclonal antibody DD3B6/22<sup>3</sup> conjugated to colloidal gold particles to detect D-dimer containing molecules. The antibody-gold conjugate binds specifically to D-dimer containing molecules in the patient sample to form a complex. The antibody-gold-D-dimer complex migrates through a membrane in the aqueous phase until it is captured and concentrated on a zone to which a second, D-dimer specific murine monoclonal antibody has been bound.

The capture of the complexes at this zone (test zone [T]) causes a pink/purple line to appear on the membrane. If D-dimer concentrations are below the clinically established cut-off, no visible line should be produced. Uncaptured gold conjugate continues to flow towards the end of the strip where it is bound on the procedural control (PC) zone by anti-murine antibody. Formation of a pink/purple PC line indicates the device is working as designed.

## WARNINGS AND PRECAUTIONS

- Buffer contains sodium azide (0.05%). Sodium azide may react with lead and copper plumbing to form highly explosive metal azides. If discarded into sink, flush with a large volume of water to prevent azide build-up.
- All reagents of this kit are strictly intended for in vitro diagnostic use only.
- All human blood products should be handled as potentially infectious material. Wear disposable gloves while handling specimens.
- Testing materials (specimens, test devices and pipettes) should be disposed of in accordance with local, state and/or federal regulations.

## COMPONENTS OF THE KIT

**Storage:** Store at 2°C to 25°C. Do not freeze.

**Expiration:** Refer to label for expiration date.

### Test Device x 10

Each device is individually packaged in a foil pouch with desiccant. Active ingredients in the device are murine monoclonal antibody specific for D-dimer conjugated to colloidal gold particles, a second D-dimer specific murine monoclonal antibody and a sheep anti-murine IgG antibody.

### Buffer - 1 x 2.6mL

Isotonic saline solution (0.9% sodium chloride) containing 0.05% sodium azide as preservative.

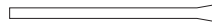
### Capillary Pipette x 10

Single-use capillary pipettes for use with **fingerprick blood**.



### Venous Pipette x 10

Single-use pipettes for use with **venous whole blood**.



Do not mix kit components from different lots.

## MATERIALS REQUIRED BUT NOT PROVIDED

- Specimen collection tubes: Sodium citrate, EDTA or heparin (Venous Whole Blood or Plasma procedure)
- Sterile Single Use Safety Lancet (minimum depth 1.8mm), for example VITREX SAFE® brand (Fingerprick Blood procedure)
- Pipette and tips able to deliver 20 µL (for plasma only)
- Clock or stopwatch for timing the reaction for 10 minutes.
- Disposable gloves.

## SPECIMEN COLLECTION AND PREPARATION

**Either Whole Blood (venous or fingerprick) or Plasma is suitable for use with this test.**

### Fingerprick Blood

1. Follow recommended fingerprick procedure.
2. Lance patient's finger using a Sterile Single Use Safety Lancet (minimum depth 1.8mm).
3. **Collect fingerprick blood with the capillary pipettes provided in the kit. Do not use the venous pipettes.**
4. Hold a capillary pipette horizontally and touch the tip to the blood drop on the patient's finger.
5. Do not squeeze the bulb of the pipette during sampling or obstruct the vent. Capillary action will automatically draw the blood into the pipette.
6. Allow the pipette to fill to the black line.

7. Immediately transfer the blood specimen to the round sample well of the test device.
8. Samples showing evidence of clotting are unsuitable for testing. If this is the case a further capillary sample must be taken from another finger. Use a new lancet and a new capillary pipette.
9. Samples with a haematocrit outside of the normal range may alter **Clearview Simplify D-dimer** sensitivity due to the differences in the plasma fraction.

### Venous Whole Blood

1. Collect whole blood by venepuncture into sodium citrate (nine parts of venous blood drawn into one part 3.2% trisodium citrate), heparin or EDTA anticoagulant.
2. Store blood samples refrigerated and test within 24 hours of collection.
3. Samples showing evidence of clotting are unsuitable for testing.
4. Samples with a haematocrit outside of the normal range may alter **Clearview Simplify D-dimer** sensitivity due to differences in the plasma fraction.

### Plasma

1. Collect whole blood by venepuncture into sodium citrate (nine parts of venous blood drawn into one part 3.2% trisodium citrate), heparin or EDTA anticoagulant.
2. Centrifuge the sample (1500g for 15 minutes at 4°C -10°C) and remove the plasma immediately from the blood cell interface.

Plasma storage/stability:

+20°C to +25°C	: 8 hours <sup>4</sup>
+2°C to +8°C	: 4 days
-20°C	: 2 months

Frozen plasma samples should be thawed at 37°C or room temperature and mixed thoroughly before testing.

## PROCEDURE

### Important!

- Once pouch is opened, commence use of device within 10 minutes.
- Test and PC zones are dyed yellow for manufacturing quality control purposes. The dye does not interfere with the test results and will wash away while the test is developing.
- Do not touch or damage the membrane in the test device.
- Use a separate pipette or pipette tip for each sample.
- Allow sample and buffer drops to fall onto the membrane at the sample well.

### Fingerprick Blood

Tear open a foil pouch and place the test device on a flat horizontal surface.

**NOTE: use the capillary pipettes provided in the kit for dispensing capillary fingerprick blood samples.**

- Hold the capillary pipette containing the fingerprick blood specimen in a vertical position above the round sample well of the test device. Squeeze the bulb and dispense **all the blood** (35 µL) in the capillary pipette into the round sample well.  
Note: if the blood will not expel from the capillary pipette, place a finger over the vent hole and squeeze the bulb again. Discard used capillary pipette into biohazard waste receptacle.
- Allow the sample to completely penetrate the sample pad before adding buffer.
- Holding the bottle vertically apply **2 drops** of buffer to the sample well.
- Leave the test device lying flat for the development period and read the result at **10 minutes**.

or

### Venous Whole Blood

Tear open a foil pouch and place the test device on a flat

horizontal surface.

**NOTE: use the venous pipettes provided in the kit for dispensing venous whole blood samples.**

- Squeeze the venous pipette near the sealed end. Insert the open end of the pipette into the sample. Release the pressure to draw up the sample into the pipette. Holding the pipette vertically, transfer **1 drop** (35 µL) of whole blood to the round sample well. Discard used pipette into biohazard waste receptacle.
- Allow the sample to completely penetrate the sample pad before adding buffer.
- Holding the bottle vertically apply **2 drops** of buffer to the sample well.
- Leave the test device lying flat for the development period and read the result at **10 minutes**.

or

### Plasma

Tear open a foil pouch and place the test device on a flat horizontal surface.

**Use a laboratory pipette (not provided) for dispensing plasma samples. DO NOT use the capillary pipettes or venous pipettes provided in the kit.**

- Dispense 20 µL of plasma into the round sample well.
- Allow the sample to completely penetrate the sample pad before adding buffer.  
Holding the bottle vertically apply **2 drops** of buffer to the sample well.
- Leave the test device lying flat for the development period and read the result at **10 minutes**.

### Quality Control

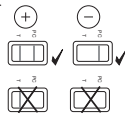
To confirm the proper functioning of the **Clearview Simplify D-dimer** test system it is recommended that both positive and negative controls be tested at regular intervals. Control

samples should also be run on receipt of each new consignment of **Clearview Simplify D-dimer**, and at any time that the validity of results is questioned. The samples selected as a positive control should produce a weak to moderate positive result on the test line (T) combined with a clearly visible PC line. The negative control should yield a negative result. Control samples should be tested by the same procedure as patient samples. **Clearview Simplify D-dimer controls**, product number 6101KCV, are available from Inverness Medical, or your local distributor.

## RESULTS

### Test Validity

- Valid Result: A pink/purple line must be present in the PC zone.
- Invalid Result: No line present in the PC zone. The device has failed to perform correctly and the test must be repeated.



**Positive Result:** Presence of a pink/purple line in the test zone (T).

**Negative Result:** Complete absence of a line in the test zone (T).

### Notes

- The PC line will appear before the 10 minute reading time has elapsed. This does not mean that a negative result can be read at this time.
- A negative result must be read only at 10 minutes and not before or after.
- A positive test band may develop before the 10 minute reading time and a result may be read as positive provided the PC line has also developed.
- The PC line is intended as a test validity indicator only. It is not an internal reference for test line intensity and cannot be used

for comparison with patient results.

## LIMITATIONS OF PROCEDURE

Clinical diagnosis should not be based on the result of the **Clearview Simplify D-dimer** test alone. The full clinical context of the patient should be included when making a diagnostic decision taking into account the clinical signs and other relevant information such as the Wells pre-test probability score<sup>5</sup> or equivalent.

Negative D-dimer results can occur very occasionally even in the presence of a DVT due to other factors including the age or position of a clot, heparin therapy and when the D-dimer concentration is below the sensitivity of the test<sup>6</sup>.

## EXPECTED VALUES

Elevated levels of D-dimer are an indication of active fibrinolysis and have been shown in patients with disseminated intravascular coagulation (DIC)<sup>7,8</sup>, deep vein thrombosis (DVT)<sup>9,10</sup> and pulmonary embolism (PE)<sup>11,12</sup>.

Elevated levels of D-dimer have also been reported in surgery, trauma, sickle cell disease, liver disease, severe infection, sepsis, inflammation, malignancy and in the elderly<sup>13,14</sup>. D-dimer levels also rise during normal pregnancy but very high levels are associated with complications<sup>15</sup>.

A positive result indicating active fibrinolysis should be obtained with **Clearview Simplify D-dimer** when D-dimer levels are greater than or equal to the cut off of approximately 80ng/ml as measured by an ELISA method (DIMERTEST<sup>®</sup> GOLD EIA).

## PERFORMANCE CHARACTERISTICS

### Normal Blood Donor Samples (n = 99)

In-house study conducted at AGEN Biomedical Ltd, Brisbane, QLD, Australia.

% Negative by Clearview Simplify D-dimer	
Whole Blood	Plasma
86.8%	84.8%

## DVT Study

Clinical performance of **Clearview Simplify D-dimer** was assessed in a prospective accuracy study.<sup>16</sup>

n=120 consecutive outpatients referred for investigation for suspected DVT. **Clearview Simplify D-dimer** results were compared to bioMérieux VIDAS<sup>®</sup> D-dimer New. DVT was confirmed by compression ultrasound (CUS).

Assay	Sensitivity	Specificity	NPV
<b>Clearview Simplify D-dimer</b>	100% (90.0-100%)*	52.9% (41.8-63.8%)*	100% (92.1-100%)*
<b>Vidas<sup>®</sup> D-dimer New</b>	100% (90.7-100%)*	48.8% (37.6-60.1%)*	100% (91.2-100%)*

\* = 95% Confidence Intervals, NPV = Negative Predictive Value

## PE Study

Clinical performance of **Clearview Simplify D-dimer** was assessed in a retrospective accuracy study.<sup>17</sup>

n=527 consecutive patients referred for investigation of suspected PE and chest pain. **Clearview Simplify D-dimer** results were compared to bioMérieux VIDAS<sup>®</sup> D-dimer New and Diagnostica Stago STA<sup>®</sup> Liatest D-DI (n=479). PE was confirmed by V/Q lung scan, CT scan or pulmonary angiography.

Assay	Sensitivity	Specificity	NPV
<b>Clearview Simplify D-dimer</b>	100% (92.5-100%)*	47.9% (43.3-52.6%)*	100% (98.4-100%)*
<b>Vidas<sup>®</sup> D-dimer New</b>	100% (92.5-100%)*	48.8% (44.1-53.4%)*	100% (98.4-100%)*
<b>STA<sup>®</sup> Liatest D-DI</b>	100% (92.5-100%)*	47.5% (42.7-52.3%)*	100% (98.2-100%)*

\* = 95% Confidence Intervals, NPV = Negative Predictive Value

## Precision

Intra-assay (within run) precision was determined for 10 replicates of 3 plasma samples containing D-dimer concentrations of 0ng/mL, 150ng/mL and 650ng/mL. The results were equivalent for all replicates of each sample.

5 plasma samples with D-dimer levels ranging from 0ng/mL to approximately 2000ng/mL were tested consecutively for 10 days with the same lot of **Clearview Simplify D-dimer** to assess inter-assay precision. Over the 10 day period, identical results were found for the 5 specimens assayed.

## Interfering Substances

No assay interference was demonstrated with spiked specimens containing potential interferents at, or below, the following concentrations: bilirubin (0.2g/L), lipid (30g/L), protein (60g/L, gamma globulin) and haemoglobin (10g/L).

## Rheumatoid Factor

In a study of 29 samples from patients with rheumatoid arthritis, 13 samples gave a positive result with **Clearview Simplify D-dimer**. With all 13 samples, the positive reaction could be blocked by the addition of a D-dimer specific monoclonal antibody. In comparison, the addition of a non-specific antibody of the same subgroup, IgG<sub>1</sub>, had no effect on the results, with all results remaining positive. This suggests that **Clearview Simplify D-dimer** is insensitive to Rheumatoid Factor interference.

## PRODUCT SUPPORT/ADVICE LINE

For further information please contact your distributor or call Inverness Medical Customer Service on:

+44 (0) 1234 835959

[www.clearview.com](http://www.clearview.com)

[product.support@invmed.com](mailto:product.support@invmed.com)

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British Biocell International Limited, Dundee, DD2 1NH, UK

## Bibliografia/Referenties/Referencias/References/Henvisninger/Referenser/Literatur/Références/Referanser/Referências/Παρατιμπές

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Solo per uso diagnostico in vitro/Uitsluitend voor In Vitro Diagnostiek/Exclusivamente para diagnóstico in vitro/For In Vitro Diagnostic Use/Til in vitro-diagnose brug/För diagnostisk användning in vitro/Für die In-Vitro-Diagnostik/Destiné à un usage diagnostique in vitro/Til bruk ved in vitro diagnostikk/Para uso em Diagnóstico In Vitro/**Μόνο για διαγνωστική χρήση in vitro**



Numero di partita/Lotnummer/Número de Lote/Lot Number/Lot nummer/Satsnummer/Chargennummer/Numéro de lot/Batch nummer/Número de lote/**Αριθμός παρτίδας**



Tampone/Buffer/Tampón/Buffer/Buffer/Buffer/Puffer/Tampon/Buffer/Solutio-tampão/**Ρυθμιστικό διάλυμα**



Consultare le istruzioni per l'uso/De gebruiksaanwijzing raadplegen/Consulte las instrucciones para el Uso/Consult Instructions for Use/Se brugsanvisning/Se bruksanvisningen/Gebrauchsanleitung konsultieren/Lire le mode d'emploi/Les bruksanvisningen/Consultar as Instruções para utilização/**Βλέπε τις Οδηγίες χρήσης**



Data di scadenza/Te gebruiken voor/Utilizar Antes de/Fecha de Caducidad/Use By/Expiry Date/Udløbsdato/Usar até/Använd före/Utgångsdatum/Verwendbar bis/A utiliser avant/Date de péremption/Anv. inden/Brukes ved/Prazo de Validade/**Χρήση ως/ Ημερομηνία λήξης**



Conservare a temperature comprese tra 2°C e 25°C/Opstaan bij 2-25°C/Almacenar a 2-25°C/Store at 2-25°C/Opbevares ved 2-25°C/Förvaras vid 2-25°C/Bei 2-25°C lagern/A conserver à une température comprise entre 2 et 25°C/Lagres ved 2-25°C/Conservar a 2°C-25°C/**Φυλάξτε στους 2-25°C**



Dispositivo per test/Testtoestel/Dispositivo para Prueba/Test Device/Testenhet/Analyseenhet/Testvorrichtung/Dispositif d'examen/Testapparat/Dispositivo para testes/**Δοκιμαστική συσκευή**



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