ANTIGENS

BBI Solutions

HUMAN D-DIMER

Alternative nomenclature	Fibrin degradation product
Accession Numbers	N/A
Source	Pooled normal human plasma
Applications	Critical reagent for quality control and calibrator material to support multiple applications including Biosensors, Clinical Chemistry, ELISA Assay, Lateral Flow

Protein Occurrence	D-dimer is formed during the coagulation cascade, it is a product from the Factor XIII mediated degradation of fibrinogen.[1] During clot formation three enzymes: Thrombin, Factor XIIIa, and plasmin sequentially act to breakdown Fibrinogen. Thrombin cleaves fibrinogen producing aggregated Fibrin monomers. Activated plasma Factor XIII bound to fibrin polymers produce active transglutaminase (Factor XIIIa). Factor XIIIa catalyzes the formation of covalent bonds between D-domains in the polymerized fibrin. When plasmin, the end product of the fibrinolytic system, is formed, it degrades insoluble, cross-linked Fibrin and results in the liberation of a variety of Fibrin degradation products (FDP's) with a large range of molecular weights. Among these FDP's is the D-dimer, a fragment with a molecular weight of ~180kDa. The D-dimer antigen exists as part of fibrin degradation products derived from soluble fibrin.
Protein abundance and units	Raised levels of D-dimer are associated with thrombosis. Normal D-dimer reference levels are assay dependent which rely on different antibodies but generally are <0.5µg/L. Attempts have been made to standardize the values across assay platforms.[2] Measured values are age dependent and the most diagnostic criteria suggest a correction for age. D-dimer levels also change in pregnancy and levels are different at different trimesters. Some assays measure using a different unit definition based on FEU, sFEU = Fibrinogen equivalent unit (500 ng FEU/mL = 250 ng D-dimer/mL).
Function in Disease	D-dimer assays are used in the initial evaluation of patients suspected of having venous thromboembolism (VTE), deep vein thrombosis (DVT) and/or pulmonary embolism (PE). The D-dimer test is a sensitive assay for any disease process that causes intravascular or extravascular injury through infection, inflammation, cancer, or trauma. D-dimer testing has been shown to have importance in emergency medicine. [3] Monitoring D-dimer levels during therapeutic intervention is helpful in disease management, decline in the D-dimer level provides assurance that the dose of anticoagulant being used is suppressing blood coagulation. Those patients without D-dimer suppression, on anticoagulants typically have SLE, obesity, or an infection, any of which may trigger extravascular fibrin formation or overwhelm the ability of the anticoagulant to suppress fibrin formation. Reports from Wuhan in China [4] have associated poor outcome with high levels of D-dimer in patients with COVID-19 pneumonia. D-dimer is being used widely to assess the health status of patients with COVID-19 and reports suggest that COVID-19 infection is associated with intra-alveolar fibrin deposition, leading to lethal respiratory failure. Evidence is emerging that Anticoagulation or fibrinolytic therapy can improve clinical outcomes, D-dimer testing is used to monitor the response to anticoagulant therapy.

JUN20/V1

References

1. Soheir S Adam, Nigel S Key, Charles S Greenberg (2008) D-dimer Antigen: Current Concepts and Future Prospects. Blood 113(13):2878-87.
2. Carl-Erik Dempfle (2006) D-dimer: Standardization versus harmonization. Thromb. Haemost. 95:399–400
3. A Wakai, A Gleeson, D Winter (2003) Role of fibrin D-dimer testing in emergency medicine. Emerg. Med. J. 20:319–325.
4. Ning Tang, Dengju Li, Xiong Wang, Ziyong Sun (2020) Abnormal coagulation parameters are associated with poor prognosis in patients with novel coronavirus pneumonia. J. Thromb. Haemost.18: 844-847.

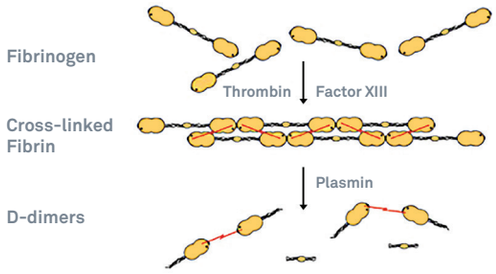
WHY BBI?

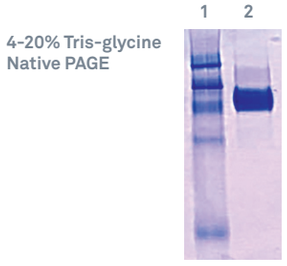
+ Our production facilities allow us to offer **large batch sizes** in multi mg quantities
+ **ISO13485:2016** audited facilities and access to many diverse testing platforms, providing you with product confidence and the analytical results you need
+ With over 25 years' experience sourcing human biologicals at our HTA approved site using state of the art purification techniques for protein purification; you can be confident of **consistent quality**

Product use

As the antigen is part of a degradation process involving enzymatic cleavage the product needs to be stabilised in use. BBI provide a part purified version in the presence of Human albumin which has been stabilised by heat treatment to deactivate residual enzyme activity or a purified preparation where residual enzyme contamination has been removed.

+ Produced from screened pooled normal human plasma – reproducible and reliable
+ Tested by Biomerieux Vidas assay – established, widely used and respected methodology
+ Evaluated with BBI antibody matched pair antibodies
+ Stabilised formulations





1 GE healthcare High molecular weight Standard
2 D-Dimer P202-3 0.9 mg/ml

ORDERING DETAILS - USE THE FOLLOWING CODES WHEN ORDERING

Product	Code	Description
Pure D-dimer	P202-3	~90% pure | Supplied liquid frozen in Phosphate buffered saline and 0.09% NaN3 with protease inhibitor cocktail. Store frozen below -15°C.
Part-pure D-dimer	P202-4	Part-purified supplied in a heat-treated stabilized matrix. Store frozen below -15°C

Related Products	Code	Description
D-dimer monoclonal antibody	MAB284P	Use as detector with MAB285P as capture in sandwich ELISA
D-dimer monoclonal antibody	MAB285P	Use as capture with MAB284P as detector in sandwich ELISA
D-dimer monoclonal antibody	BM243-1D2	Use as a capture or detector together with BM243-3B6 in sandwich ELISA or lateral flow. Also suitable for western blotting
D-dimer monoclonal antibody	BM243-3B6	Use as a capture or detector together with BM243-1D2 in sandwich ELISA or lateral flow. Also suitable for latex agglutination and western blotting